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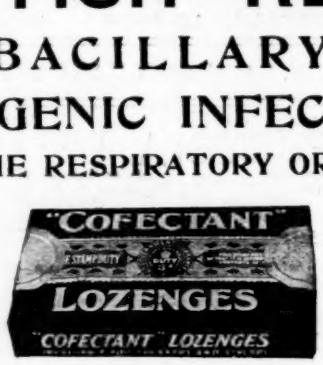

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It has been assumed that the *B. tuberculosis* is responsible for what we call consumption—that is to say, of the cases of destructive lung disease of a subacute or chronic character which are known to every family practitioner. A support for this hypothesis is that tubercle bacilli are so often present in the sputum derived from such patients. But if the sputum is studied to find what other organisms are present, it is well known to contain harmless saprophytes, several other pathogenic organisms, and even putrefactive organisms. One of the most common pathogenic organisms is the staphylococcus; there is also the streptococcus and the pneumococcus—all organisms capable of producing pus. The tubercle bacillus in its most characteristic lesions produces a very special cellular reaction which undergoes a change to form the so-called grey or white tubercle, and this may be surrounded by fibrous-tissue reaction, or the whole mass be converted into a caseated or calcareous mass. It does not seem that the tubercle bacillus is a pus-producer like the ordinary pyogenic organism. It is a much more reasonable hypothesis to believe that the pus of the expectoration is due to other organisms than the tubercle bacillus. We know on extensive observation how frequently the animal body may be actually infected by the tubercle bacillus, and yet succeed in reducing the harmfulness of the latter to nil.

We may indulge in a further hypothesis, and believe that a lung which is already damaged by the existence of tubercle bacilli is no longer able to resist attacks made by the other organisms which are found in the sputum of a tuberculous subject. This hypothesis is almost raised to the dignity of a theory when it is recalled how frequently tuberculosis of the lungs seems to date from an attack of bronchial catarrh. Some would consider such a theory an established fact; but before it may be considered such it is necessary to know by control the number of cases in which tuberculosis seems to date from a certain period which was not marked by the existence of bronchial catarrh.

HÆMOPTYSIS IN TUBERCULOSIS.

A second fact is one which has been confirmed over and over again—hæmoptysis is very frequently followed, after a long or short interval, by pulmonary tuberculosis, or by consumption. It is a well-known fact that the expectoration at the time of the hæmoptysis may reveal no tubercle bacilli. Are we right in supposing that every case of hæmoptysis, in which, say, half a drachm, or a drachm of blood, or more, is coughed up during a day on two or three successive days, is a case of pulmonary tuberculosis or of consumption? It is quite evident that before we make a diagnosis that this is the sort of hæmoptysis which leads to pulmonary tuberculosis or to consumption we must exclude the ordinary causes of what is known as pseudo-hæmoptysis. If the hæmoptysis amounts to mere streakiness, or staining of the sputum, is occasional, and has been observed over long periods, amounting to months, we are justified in hesitating in believing that such hæmoptysis means as surely ultimate consumption or pulmonary tuberculosis as if it had been a more copious bleeding.

Pathological studies show us that the *B. tuberculosis* invading an artery is more inclined to produce thrombosis, following endarteritis, with occlusion of the vessel, than to cause suppuration in the walls of the vessel with weakening of it, and the formation of an aneurysm or rupture. In other words, we may suppose that hæmoptysis reduced to its residual value as a symptom is also an expression of the mixed infection which occurs in the lungs, already the seat of tuberculosis. Can this hypothesis be exalted into a fact by appeals to experimental research? So far as I know, this has not been done; but we do know that the course of tuberculosis of the lungs is slower and more benign in people who live in warm, dry climates, or in country districts, or in elevated areas, and we presume that this is due to the fact that there is

less catarrh of the bronchi in these circumstances than in opposite ones. Moreover, we meet with very severe hæmoptysis in lung conditions which are not due to the *B. tuberculosis*—e.g., in some cases of pneumonia, in bronchiectasis, in abscess, and in gangrene of the lung. We thus find that there is considerable support for the theory that the destruction of lung tissue and of arterial walls in consumption is more a direct result of mixed infection than of a pure tuberculous infection.

THE APICAL CAVITY IN DIAGNOSIS.

Those who have to do with the examination of many chests state that quite a considerable number of cases occur in which cavities are found at the apices of the lobes of the lung; this is a well-established fact. But now we have to admit that some very sweeping hypotheses have been built upon this fact. One is that such cavities occurring at the apices of lobes indicate that the lungs are certainly the seat of pulmonary tuberculosis, which has given rise to consumption. The result is that the mere existence of a cavity or cavities justifies many physicians in diagnosing consumption. Other observers, since the presence of tubercle bacilli in the sputum, even after repeated examinations, cannot be established in the patients revealing these cavities, persist in a still further hypothesis that tuberculosis was the origin of the cavity formation, and that mere cavity formation was dependent upon a prior evacuation of all the dead tissue and of the tubercle bacilli which caused the death of the tissue. The position taken up by these observers appears unassailable, and the frequency with which consumption is accompanied by excavation of the apices raises these hypotheses to the dignity of theories. In former days, before the use of the microscope, or of inoculation experiments to prove tuberculosis of the lungs, was introduced, no doubt a great amount of suffering was alleviated by treating all patients revealing apical cavities as consumptives.

Modern research shows that the theory was too sweeping, and it is an acknowledged fact now that cavities may form in any part of the lungs, entirely independently of tuberculosis. Cavity formation in the lung may quite well be immediately dependent upon the colliquative processes caused by mixed infection, rather than upon the direct effect produced by the tubercle bacillus.

UNIVERSALITY OF INFECTION IN THE YOUNG.

Another fact which is so well known to many of us that we have become over-familiar with it, is that a very large number of children—indeed, probably *all* children—living under the conditions of civilisation, are infected by the *B. tuberculosis*. They do not necessarily suffer from the infection, because the lesions produced do not materially disturb the bodily functions. The children, in a sense, though not the true sense, of course, are "carriers" of the tubercle bacillus. In many cases they are destroyed by tuberculosis, and we know that some of the most acute and classical forms of pure tuberculosis—namely, miliary tuberculosis, occur in childhood. It looks as if the joint disease of childhood, tuberculous peritonitis and the tuberculous infections of the intestinal tract, are due to the operations of the bovine form of the *B. tuberculosis*. But we must not forget the fact that children are not only susceptible to the bovine form of tuberculosis taken in with food, but that they are equally liable as adults to take the human tubercle bacillus into their systems through the respiratory tract. And while we are discussing this subject we cannot but ask the very vital question as to the relationships of the bovine to the human form of the tubercle bacillus. I am not capable of answering the question whether these two organisms are two absolutely different types, or whether the bovine tubercle bacillus, by long residence in the human body, may not assume the cultural morphological and pathogenic characters of the human tubercle bacillus. Contemporary bacteriology admits that this question is not settled; it is quite an open one. It remains a fact, then, that children are universally infected by the tubercle bacillus of the human form, and in a certain proportion of them, varying in amount, according to different observers, are also infected with the bovine tubercle bacillus. One observation points to the universal infection by this organism, because a tuberculin reaction was found in every adult examined, and it is a common observation in the post-mortem room to see active or involuted tuberculosis in such a large number of cases who have died of some other malady. If my remarks sound over-emphasised upon this widely accepted fact (amongst pathologists) of the universal infection with the tubercle bacillus of human beings living in conditions of civilisation, I must ask you to make allowances on the ground that I think that the subject of tuberculosis has become popularised too much, or should I say has been only partially popularised. It is more palatable to a lay audience to listen to the accounts of the marvellous cures which have come as a result of this, that, or the other treatment. It is not at all palatable, and lay men and women would not be tempted to join associations for the study of this disease if they were told the whole truth. Even the business men who help to work our hospitals are much more susceptible to the stimulating effects of the publication of alleged cures than of the failures. Nor, if I may be allowed to say so to you, do I think you gentlemen, when you leave our hospitals and our post-mortem rooms and accept positions as tuberculosis officers, take sufficient pains to keep before you what pathology has taught you. Like you, I am not a pathologist; but after suffering very much disappointment following upon the small results, if any, obtained by sanatorium treatment, by the dispensary method, by so-called notification, I am asking myself and you to-day to get rid of enthusiasm and look at some bare facts.

To continue with my immediate subject, let us consider how the theory or fact of universal infection with the tubercle bacillus is borne out by some common experiences. We have all had the experience of treating a child for tuberculous glands and later on finding that child, in the adult stage, suffering from pulmonary tuberculosis. An out-patient appeared here not long ago limping on one leg, the opposite knee partially flexed and ankylosed. I recognised his face and recalled to him the fact that 16 years ago I had helped as a dresser to look after his tuberculous right knee. I also recalled to myself being sent by my surgical chief to find a physician to report on the condition of this patient's chest. The physician saw the case and told me he could find no signs of active tuberculosis, but, being a sound student of medicine, he would not commit himself and say there was no active tuberculosis in the lungs. When I examined the patient recently he had fully developed consumption. It seems to me reasonable to think that the tuberculosis which expressed itself in the knee 16 years ago was expressing itself in the lungs now, and that it was

not a reinfection from outside, but from inside, which led to the lung trouble.

PROBABLE TUBERCULOUS NATURE OF "IDIOPATHIC PLEURISY WITH EFFUSION."

Similar experiences recur so frequently that I think quite a number of us, particularly those whom we call experienced members of our profession, who have a much more thorough knowledge of the course of tuberculosis in the human animal than comparative beginners, like yourselves and myself, could give many stories showing how a tuberculous subject may show invasion of this, that, or another system at successive periods through a fairly long life. Are we really at the present day quite satisfied as to the genesis of the so-called idiopathic pleurisy with effusion, as it occurs in the young? It is so well known that many of these cases will ultimately develop consumption that insurance companies shy at them. There may be no sputum in such cases, or, if there is any, neither it nor the effusion shows tubercle bacilli. Only once have I ever had the opportunity of seeing the pleura in such a case. The patient concerned died three to four days after the removal of a pleural effusion; the pleura was found covered with millions of grey or white tubercles. Fortunately many of these cases of tuberculous pleurisy with effusion seem to put off pulmonary tuberculosis and consumption for many years; but only too often these diseases supervene eventually. I think we *must* feel that we all harbour the tubercle bacillus, and its activity may be revealed at various periods of life; once, or more than once, in the same tissue or organ, or in different ones; or the organism may lie dormant throughout the whole of life. It is quite true that I do not know what is the condition of the human body between these various manifestations of this latent tuberculosis. So I must simply call it a theory.

THEORY OF REINFECTION.

There is another theory which to my mind is not so near the truth as the one we have just been considering. There are those who consider that though so many children may be infected by the tubercle bacillus they master the infection completely, and are no longer tuberculous. If later on in life they show a tuberculous lesion, such as a tuberculous arthritis, this is due to a fresh infection from outside! The tuberculous arthritis recovers, the tuberculosis is again mastered. If spinal caries shows itself later on, or a tuberculous disease of the urinary system, or at a long last tuberculosis of the lungs, each is due to a fresh reinfection! My reason for asking you to consider these two hypotheses very closely is that I think it is so important that you should make up your minds on the point, because your attitude towards the treatment of tuberculosis and the management of your patients is so vitally influenced according to the view you hold. You may say that so far as you can see, neither hypothesis has been exalted into a fact, or even to a theory, and it is useless to act as if either was true, to the exclusion of the other. Before you finally take up this non-committal attitude you must realise that by doing so you are not going to be of much use to your patients. Moreover, your patients will soon find you out, and you will be left with two alternatives, to be non-committal and tell the whole story to each patient, and a few will remain content; the rest will suspect you, and rely upon the help of someone who holds one or other view whole-heartedly. I need hardly say that some will fall into the hands of practitioners who do not know which view they hold, or, following the policy of "hunting with the hounds and running with the hare," hold whichever view is convenient at the moment.

THEORY OF AUTO-INFECTION.

I will put before you one or two further points which influence me very much, and have confirmed me in the belief that probably in a large majority of the cases reinfection takes place from within. I think it has been your experience, as it has been mine, to be present at an operation on the abdomen, which has been undertaken for quite a different purpose, and that purpose has been carried out, but at the same time well-marked lesions of a tuberculous character, sometimes active and sometimes inactive, have been found as well. The wound has been closed and the patients appear to have recovered absolutely. Such a fact as this, coupled with the fact that we so often find inactive and active tuberculous lesions in the bodies of patients, who die of some other complaint, has converted me to the view that a single, or repeated tuberculous manifestation is but the expression of a reinfection of this, that, or the other tissue from a deposit, dormant hitherto, of tuberculosis laid down in childhood. I do not deny that in some cases reinfection may take place from outside, either as a result of a small or large dose of fresh tubercle bacilli entering the system when the resistance for the time being is low; but I think this is exceptional.

The other hypothesis has been run recently for all that it is worth, and because we are not finding an improvement in the figures, say, of cases of development of pulmonary tuberculosis, the hypothesis has become suspect, and there is a change of the pendulum to the more stable position taught by pathology. Do not mistake me: I do not wish to see a return to expectoration in our railway-carriages or buses, or on the pavements of our streets. I do not want to abolish the sputum flask or the sputum pot. Indeed, I do not want to abolish anything which is good-mannered, as opposed to bad-mannered; but what I do hope to see is a marked reaction against the hypothesis of reinfection from outside, so that the liberty and comfort of the patient afflicted are not curtailed.

The critical layman, listening to this difficulty of ours, and knowing that our profession is divided, one part believing that in the majority of cases reinfection takes place from within, and the other believing the opposite, and neither group of physicians being able to produce evidence which could convert either hypothesis into a fact, would probably come to the conclusion that we modern physicians are not far removed from our predecessors who combined some medical knowledge with a large amount of reliance upon mere creeds. I think such criticism would be unfair, for after all we admit the shortcomings of our present knowledge, and admit, too, that what we have been doing in recent years is to try to see what will happen with our tuberculous patients if our treatment, prophylactic or curative, of the tuberculous person was based on the hypothesis of reinfection from without. Some of us suspected failure from the outset; an increased number of us view it with suspicion now because evidence is not forthcoming that tuberculosis is being lessened in incidence or in severity as a result of the establishment of tuberculosis dispensaries,

of notification, and of the segregation in sanatoriums and other institutions of the tuberculous subject. This is exactly what we should expect if we confessed that the cure of tuberculosis has not been found, that the tubercle bacilli gain access to civilised humanity universally in childhood, and that in a great majority of cases if tuberculosis of any organ develops in later life, this is but reinfection from within the body from foci of the disease already established.

DOUBTFUL VALUE OF SANATORIUM TREATMENT.

Let us turn now to another fact which I owe to a colleague. He has lived through the period before sanatoriums were introduced, and he has lived through the period when sanatoriums and sanatorium methods have been in vogue. He tells me that to go round the Bromptom Hospital wards now and compare the condition of our patients there with that of the patients admitted to the wards before the days of the introduction of open-air methods would convince anybody that the newer methods of open-air management were curing our cases of pulmonary tuberculosis. To his mind this is a fact, and he is supported by the increased efforts being made to establish more sanatoriums in this country, and by the fact that the nation has spent something like £5,000,000 since 1912 in effecting the cure of tuberculosis on these lines. He is also supported by the well-attested observation that the modern type of tuberculous patient lives infinitely longer than a consumptive of former days. He pointed out how rare it is to find amongst our patients those who were drenched in perspiration, who were expectorating large amounts of sputum, running high temperatures, and gradually developing lardaceous disease. I could support this statement, and say that in seven years' work in the wards here it was rare to see a case of advanced consumption, that relatively few patients die in the hospital—many less than used to do—and I have never seen a case who has died reveal lardaceous change in the post-mortem room. I should be very glad to acknowledge that I was convinced by my colleague that this wonderful change was all due to open-air methods. But there is an obvious fallacy, because in former days this hospital was founded and used for the admission of consumptive patients—in other words, for the very patients who are now almost excluded. We should expect that those patients would be very ill when admitted to the hospital, that many of them would die in the hospital; for it is well known that the life of a consumptive was, and still is, a comparatively short affair. If you visit the wards of the hospital to-day you would be struck by the healthiness of the patients, by the number of them who have no fever and are allowed to be up and about every day—even all day. Some of them have pulmonary tuberculosis, and are being "shepherded" into the Frimley Sanatorium, if they are able to do physical work, or into the sanatoriums provided by the State if not able to work. Others of them are merely taken in for observation, and I think I may say that the reason for the admission of some of these latter cases is sometimes that the patient has symptoms which, on careful general examination, can be referred to disorder of some other system than the lungs, but which have in error been referred to those organs, and to tuberculosis of those organs. Some patients are admitted for being under weight, for debility, for anæmia, because these symptoms are associated with a history of cough or of tuberculosis in some other member of the family. Can it be wondered at, then, that the material in the wards of this hospital at the present day shows so much less invalidishness than before sanatorium methods were introduced? Can it be wondered at that deaths are fewer here, and that the patients admitted here live longer than they used to do? Only a few cases of advanced consumption are ever admitted to the wards of this hospital now, and pressure is brought to bear to have them discharged as soon as possible. The Insurance Act then deals with these patients, and labels them "fit for domiciliary treatment," and they are sent to our infirmaries or homes for the dying, or, where the relatives can afford or prefer it, they are allowed to return to their own homes.

So I hope you see that the fact which my colleague insisted upon is far from being *proved* to be a fact. It appears to be a fact not because open-air treatment is curing our patients when other methods fail, but because an infinitely healthier group of patients is being subjected to open-air methods than ever was submitted to the treatment, whatever it was, which was in vogue in this hospital formerly.

UNRELIABILITY OF STATISTICS.

The returns of the Registrar-General for a good many years prior to, and in part inclusive of, the period when sanatorium treatment was introduced into this country show a great improvement in the number of deaths from tuberculosis. That is a fact which is incontrovertible; but there are many divergent views of its explanation. The favourable reduction was world-wide. Some have explained it by improvement of the general hygienic conditions of life, better housing, better food, &c. It has, however, been pointed out that if this curve of improvement in the deaths from tuberculosis was but a part of a general fall in deaths from tuberculosis, that about the time of the Tudors the deaths of all humanity would be mainly from tuberculosis, and if the general average age of death was the same then as now, scarcely any one in the Tudor period would have lived beyond 50 years, or, if they did, would be in well-advanced consumption. It is more probable, as Professor Karl Pearson points out, that the deaths from tuberculosis followed curves of increasing and decreasing severity, much as we see in the curves of mortality from other infective diseases, the great difference being that in the case of tuberculosis, a very chronic malady, but few physicians can say they have seen the beginning and the end of a single wave in the mortality curves.

We must not claim that open-air methods have been proved to cure pulmonary tuberculosis or consumption. Our statistical methods are at fault. They will not convince any ordinary critical person. I will give you an example of what I mean, drawing my material from the published records of an institution which devotes itself to the cure of pulmonary tuberculosis. It points out that 11 cases entering the institution in 1905 had one lobe of the lungs affected with tuberculosis, as proved by the presence of tubercle bacilli in the sputum. The statistical report went on to show what happened to these cases in subsequent years. At the end of the following year eight cases were well and able to work. All that could be found out about the remaining three cases was that, at any rate, they were alive. Details are then given of the result of

inquiry into the condition of these same 11 cases at the end of 1912. Not a single case was reported "well and able to work," but as eight of the total number could not be heard of at all, no deductions could be made from this fact. Of the remaining three, one was reported merely as "alive," two were dead.

I submit to you that it would be very hard to expect from that report any facts which supported the view that that institution was curing tuberculosis of the lungs. Curiously there was another set of 11 cases admitted into the same institution in the same year, 1905. In these cases three lobes of the lung were involved instead of one, and tubercle bacilli were present in the sputum. At the end of 1906 eight of them reported "well and able to work," two of them reported merely "alive"; one had died. In 1912 only one was "well and able to work"; two were merely "alive"; seven were dead; one was lost sight of. The perusal of these tables seems to point to the deduction that the earlier cases of frank tuberculosis of the lung are admitted into sanatoriums, less of such number will be dead seven years afterwards than would be found dead amongst those who were admitted with more extensive disease.

When we ask ourselves how much support do reports like these give to the belief that sanatorium methods or sanatoriums cure tuberculosis of the lungs, the answer can only be, they give no support at all, and for the simple reason that we do not know what would happen, favourably or unfavourably, with cases not subjected to such treatment.

CONTRAST BETWEEN PULMONARY TUBERCULOSIS AND CONSUMPTION.

Listening to my remarks, some of you may be seriously alarmed about cases of tuberculosis placed under your care. You may be tempted to feel that I am painting a gloomy picture of them for the future; that they are bound to die, and that nothing will save them. I would beg of you to abandon such a view, and would point to the number of cases who, dying of some other disease, show that they have mastered tuberculosis of the lungs. This process of curing is probably going on in some individuals in this very lecture room. Many useful and long lives have been spent with tuberculosis held in leash, death occurring from some quite different cause. I am quite convinced that pulmonary tuberculosis is curable, just as any other form of tuberculosis is curable. I am not so sure about consumption, however, because the very nomenclature of the condition indicates signs and symptoms upon which few of us would like to express a cheery opinion. To my mind, there is an immense difference between pulmonary tuberculosis and consumption: they are not synonymous terms, and I am always glad to see that our notice board still retains the word "Hospital for Consumption" rather than making use of the term "pulmonary tuberculosis." I am quite convinced, and several of my friends here are also convinced, that the evidence is still wanting that sanatorium methods cure tuberculosis of the lungs or that they favourably influence the mixed infections which, added to the tuberculous infection, are responsible for what we call consumption.

Seeing how many cases of tuberculosis of the lungs, and even of consumption, live and work without ever going into a sanatorium, one is driven to the conclusion that it is the individual himself, or herself, who by reason of a resistance, which we do not yet understand, which we cannot measure, which we cannot increase or diminish, by any known system of medical treatment, who cures his, or her, tuberculosis.

DANGERS OF PROPHECY AS TO LENGTH OF LIFE.

I have another fact to bring before your notice—namely, that it is unsafe to prophesy how long cases of pulmonary tuberculosis, or of consumption, will live. On the one hand, we know that tuberculosis of the lungs in childhood, revealing evident signs of consolidation of the lungs, wasting, fever, loss of appetite, &c., will after a long last, pull through and apparently recover. On the other hand, how quickly some children seem to be carried off by the development of tuberculosis, following such an illness as whooping-cough or measles. The same warning is necessary in the case of adults. In every case of tuberculosis of the lungs, to "wait and see" must be our only programme. In general terms I think one may say the longer a case survives after any initial illness, or any initial symptom which is recognised to be of a tuberculous origin, the slower will be the further progress of the case, barring such accidents as hæmoptysis, pneumothorax, meningitis, &c. Whenever the tuberculous illness has only just declared itself and is revealed by a minimum of signs in the lungs, prognosis should not be attempted.

NEED FOR FURTHER EXPERIMENTAL EVIDENCE ON THE FACTORS INFLUENCING RESISTANCE.

A fact which is very important, and thoroughly well established, is that the instruction to notify cases of tuberculosis is disregarded wholesale. The patient's comfort, his right to liberty of action, his right to earn his living, and his right to "live with his own," to use an expression coined by a responsible Member of the Government quite recently, are felt by our profession to be paramount, and the behests of the Insurance Act are ignored, and they should be ignored, I think, until the Government is prepared, on finding that a certain individual is notified as a case of pulmonary tuberculosis, to keep him and those dependent upon his good health, as long as he has ill-health, and if he never can be restored to working capacity, until he dies.

Some of you have come from outlying States of the Empire, and you are carrying back impressions you have picked up in this country, especially with regard to the management we mete out to our cases of pulmonary tuberculosis. One of you has informed me that in his practice in a certain well-known State, in which he sees about 4000 patients a year, he has, on an average, only one suffering from tuberculosis of the lungs. I am familiar with the country of which he speaks; I know of its warmth and dryness, and judging from what I have seen of the homes of the rich and poor in London, and of the sort of life they have to lead from November to March of each year, I am quite convinced that the time has come for the *trial* of some other method for dealing with tuberculosis of the lungs. As you can guess from the remarks that I have uttered in this lecture, I am almost more alarmed by the mixed infection of the lungs than by the tuberculosis of the lungs which precedes it, because I feel that lung destruction—that is, consumption—is due to the mixed infection. We are already hearing favourable results of village settlements for those suffering from tuberculosis of the lungs in this country. I wish very much that it were possible to

transplant the experiment to the dry, warm country above referred to, to see whether the absence of catarrhal infection of the lungs would not yield infinitely better results than the same methods carried out in this country. You observe I want a proper trial, with controls. We ought not to assume that *prima facie* such a plan would cure tuberculosis of the lungs or consumption; that was the way sanatorium treatment in this country was introduced. One experience of that kind should be quite enough. It is a certain fact to me that the scheme of curing tuberculosis of the lungs by sanatoriums in this country still remains to be proved capable of fulfilling its task. The large number of so-called suitable cases known to me who have gone through sanatorium treatment, and have not been cured, and have even got worse while undergoing the cure, considered with similar cases in which sanatorium methods seem to have effected a cure, make me wonder whether the cures, and the failures to cure when they have happened, were not, after all, dependent upon the success or failure of some factor other than the sanatorium treatment. I believe that other factor is most conveniently to be spoken of as the individual's resistance. All the members of a civilised community have been infected with the tubercle bacillus in childhood. Then why do they not all succumb to the infection? The answer must be, because they have resistance, which for all we know may be a constant quantity, may be of a low order, or high order, or it may be of varying quantity, changing from a high to a low order, and vice versa: it may become completely exhausted in a few years, or it may maintain its high value throughout life. I fully admit that whether a patient succumbs or not may be due to an increased or decreased virulence of the infecting tubercle bacilli, and may even be due to the fact that the infection is massive or only small in amount. It is not possible to influence the virulence of the infecting bacilli. It is reasonable to try to reduce the amount of infection each one suffers; but only so long as we do not impose hardships upon the individual affected. Can we influence the resistance of the body to tuberculosis? We have done this already with regard to typhoid fever, and catarrhal infections of the respiratory tract by the use of vaccines. It is reasonable to think (1) that by the use of tuberculin very early in life increased resistance to subsequent tuberculous infection could be given to the child; (2) if an individual has already shown evidence of tuberculosis of the lungs, then vaccination against catarrhal infection should prevent what we call consumption. It seems to me that these are the two great possibilities for the future; but they should be *proved first*, just as I have hinted above we must experiment first before we say that removal to a warm, dry climate is also capable of reducing consumption. Do we know of anything which lowers the resistance of the individual to infection by the tubercle bacillus? We have strong evidence for believing that town life, indoor occupations, bad feeding, want of sunlight, &c., are all capable of leading to the development of tuberculosis. Such matters can be influenced, but we should be careful lest, for example, in securing plenty of fresh air, we do not pass from Scylla to Charybdis, for cold damp air in this country, at any rate, especially in the winter, has to be taken with large and sudden doses of hot, dry atmospheres, which leads to catarrh. Clinical study points clearly to the view that the lung destruction we call consumption may be due to the mixed infections which characterise bronchial catarrh. We can influence this agency, and I think it is of first importance that the experiment should be made. We must then leave to each individual the task of fighting the tubercle bacillus by his own resistance, because we have, so far, not shown experimentally that the resistance to the tubercle bacillus can be usefully increased by the use of tuberculin. I know a great question has been raised—namely, Is the resistance to tuberculosis diminished at all by the presence of the organisms of mixed infection? So far as I know, this has not been experimentally proved, and until that is done we can make no practical use of the theory one way or the other. I think it is proven that given the tubercle bacillus in the lung a certain amount of tissue is rendered less viable, owing to the direct effect of the tubercle bacillus. Such less viable, or even dead tissue, provides a suitable soil for saprophytic organisms, and possibly for pyogenic organisms. These latter organisms interfere with the ordinary power of the tubercle bacillus to produce fibrosis, and by the process of abscess formation lead to what we call consumption.

CARBON-MONOXIDE POISONING IN WARFARE.

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IN addition to poisoning by the various "drift gases" and "shell-gas" fluids made use of by the enemy, there is another very important type of gas-poisoning met with in warfare.[1] This is poisoning by carbon monoxide, "mine-gas poisoning" as it is called, to distinguish it from the drift-gas poisonings; and it is usually met with among men of the engineer units engaged in the mining and countermining that of necessity accompany stationary warfare, and have done so at least since the days of Herodotus and Josephus.

The carbon monoxide, which has been described by Brouardel as holding first place amongst the toxic gases,[2] and is the toxic agent in these cases, is produced during the explosion of the charges in the mines, and is evolved in such quantity that in the case of a mine exploded in the month of September, 1916, the gas, issuing from the ground broken by the explosion, and taking fire, burned with a flame visible at a distance of a mile, and had not entirely ceased to burn at a quarter past four in the morning, five and three-quarter hours after the mine had gone up. Where the mine is more deeply placed, or where a smaller charge has been used, so that the surface of the ground has not been broken, the gas is either forced into the underground system of mine galleries or gradually percolates into the galleries through cracks and porosities in the ground, and in these circumstances the miners become subject to this form of gas poisoning, the severity of which may range from mere headache and debility to coma and death. Both among the Germans and among our own men many casualties have occurred in this way.

In some cases the reflux of carbon monoxide after an explosion has come up the mine-shaft and

[1] In Penhallow's "Military Surgery" (1916) the only forms of gas-poisoning mentioned are shell gas and drift gas.

[2] Les Asphyxies par les Gaz, les Vapeurs et les Anesthésiques, 1896, p. 5.

caused gas poisoning in persons in the trench in the near vicinity to the mine entrance. There is a persistent rumour, too, that during the first winter of trench warfare (and certainly such cases occurred during every subsequent winter of the war) there were cases of carbon-monoxide poisoning, some ending fatally, apart from mining work, due to braziers of burning fuel having been taken into dug-outs during the night, the dug-outs having been sheltered against the bitterness of the winter cold by a heavy blanket hung across the entrance, and effectually preventing the escape of the products of combusion. Carbon monoxide, as is well known, has the effects of a cumulative poison, even in relatively small quantities, although it is not possible to go as far as Claude Bernard, and say that every breath drawn in an atmosphere containing this gas kills a certain number of blood corpuscles, until they are all dead and respiratory exchange is no longer possible. The vast majority of cases of carbon-monoxide poisoning among soldiers, however, is true mine-gas poisoning in the literal sense, and occurs underground, the victims being almost exclusively drawn from those working in tunnelling and other duties connected with underground warfare. The case here quoted is an example of gas poisoning, where the gas had welled up the shaft of the mine, although the patient was not actually in the open air at the time he was gassed.

J. M., aged 22 years. Eight days ago was gassed with carbon monoxide while he was in the sloping gallery leading to the head of the shaft at the time a small mine was exploded. The gas welled up the shaft, reaching the place where he was waiting. He became dizzy and weak, and came out into the open air; he has continued to feel "fair beat" ever since, with slight looseness of the bowels from time to time.

The problems of gas poisoning in mining operations in the chalk are quite different from those encountered in the working in a clay stratum, owing to the presence of fissures in the former and its porosity to gas, which may be retained for comparatively long periods and afterwards forced out into the workings by changes in barometric pressure or by a rising water-level in the chalk.

As has just been stated, the carbon monoxide, which is the toxic agent in these cases, is engendered by the explosives in use in the mining operations, and is liberated in relatively large amounts.

Poisonous Gas-production after the Use of Various Explosives.

The various explosive substances (with certain exceptions, such as the acetylene compounds) contain within themselves a considerable amount of oxygen, which is, however, generally insufficient for the complete oxidation of all the constituent oxidisable elements. In consequence, not only may there be the formation of carbon monoxide, but hydrogen, marsh gas, and certain other oxidisable substances may be liberated as the result of the detonation of various explosives. The methane is said to result from interaction of the hydrogen with the oxides of carbon as the hot gases cool down and not to be formed at the time of the explosion. Nitroglycerine is an example of the explosives which are completely oxidised on detonation, and this substance exists to the extent of 75 per cent. in dynamite and 30 per cent. in cordite, besides being present in smaller proportions in many of the blasting gelatins. Its detonation may be expressed by the following equation—

$$4C_3H_5(NO_3)_3 = 12CO_2 + 10H_2O + 6N_2 + O_2,$$

although it is capable in the presence of a suitable absorbent, such as exists in dynamite, of burning slowly in air, from which it absorbs still further oxygen with the formation of the higher oxides of nitrogen. The gases evolved from the ordinary detonation of nitroglycerine are sufficiently copious to give from 1 kg. of the explosive 713 litres of gas at N.T.P. when the water vapour has been condensed out. These gases, however, contain no carbon monoxide, although the oxides of nitrogen resulting from the imperfect detonation of a charge of dynamite are extremely pernicious in their effects if they happen to be inhaled.

Carbon monoxide is produced as the result of the use of a large series of explosives, such as gunpowder (whether in the form of rifle-powder, "cocoa powder," or blasting powder), gun-cotton (either by itself, or as cordite, of which it forms 65 per cent.; smokeless powder, which is 98 per cent. gun-cotton with 1 per cent. of acetone and 1 per cent. of moisture, etc.; or the blasting gelatins), and ammonal, the latter of which is used extensively and in enormous quantities, charges being laid and exploded such as had never been heard of or even imagined in times of peace. The fulminate in the detonators also liberates CO, but owing to the relatively small amount of this substance that is necessary, this factor may be ignored. The equation representing the decomposition of the fulminate in the detonators is as follows:—

$$HgC_2N_2O_2 = Hg + 2CO + N_2,$$

66 per cent. by volume of the small amount of gas liberated consisting of carbon monoxide; not, however, at the instant of detonation, as the molecular mercury liberated occurs momentarily in gaseous form also. The greyish fume given off on explosion of mercuric fulminate consists of finely divided metallic globules condensing out from the rapidly cooling gas.

The equation representing the explosion of a charge of gunpowder may be given as under:—

$$21C + 7S + 16KNO_3 = 13CO_2 + 3CO + 8N_2 + 5K_2CO_3 + K_2SO_4 + 2K_2S_3,$$

12½ per cent. of the resultant gases liberated consisting of this lethal substance in question. As the composition of gunpowder is variable, the quantity of gases evolved and their relative proportions varies with the type of powder that has been used. For instance, the so-called cocoa powder contains 79 per cent. of nitrate of potash, 2 per cent. of sulphur, 18 per cent. of charcoal, and 1 per cent. of moisture; black rifle-powder contains 75 per cent. KNO_3, 10 per cent. sulphur, and 15 per cent. carbon; while blasting powder contains 67 per cent. of nitre, 19 per cent. of carbon, and 14 per cent. of sulphur. The volume of gases evolved during the explosion of these three explosive mixtures, when reduced to N.T.P., is as follows, in each case 1 kg. of the explosive being used: in the case of cocoa powder 200 litres, from the black rifle-powder 275 litres, and in the case of blasting powder 360 litres. From certain French powders from 263 to 278 litres per kg. are evolved on explosion.

The detonative decomposition of gun-cotton, which may be considered as typical of the various compound explosives of which it forms part, may be expressed by this equation:—

$$C_{12}H_{14}O_4(NO_3)_6 = 7CO_2 + 5CO + 4H_2 + 3H_2O + 3N_2.$$

It will be seen from the above that in this case the percentage composition of the gaseous products of decomposition will stand for CO at about 22¾ while the gases are hot and the water present is in the form of fully vapourised steam, and about 26⅓, or

well over one-quarter of the whole, when the water vapour has condensed out. In this latter case no less than 859 litres of gas containing this high proportion of carbon monoxide are produced, measuring—at N.T.P., of course—from 1 kg. of the explosive. It is said that where, in certain special circumstances, a charge of gun-cotton burns instead of exploding, as much as 40 per cent. of carbon monoxide may be present in the fumes evolved.

Formation of "Pockets."

It is the carbon monoxide thus produced, and produced in these high proportions and enormous quantities,[3] which is absorbed into the chalk and forced into the fissures, either existing naturally or resulting from the explosion of the charges that have been laid, that is being constantly encountered by those engaged in the work of the various tunnelling companies, and which frequently results in the occurrence of cases of gas poisoning of this specialised nature. Owing to the gas being contained in cracks among the chalk it is found in what are described by the miners as "pockets," and owing to this fact in many instances the gas is liberated too suddenly for the men to notice any alteration in the behaviour of the test animals (mice or canaries) that they have with them before they are themselves beginning to be affected. Usually the amount of gas set free by the disturbance of one of these "pockets" is not too great to prevent a realisation of their symptoms, in which case they usually seek the fresh air at once.

An official document affirms that "the formation of large quantities of combustible gases—CO, H, and CH_4—is generally indicative of poor detonation." Their presence depends, however, on the essential nature of the explosive used, though in a certain sense the occurrence of these gases in the galleries may depend on imperfect detonation. Where a well-detonated charge has been expected to break the surface a vent will, of course, be formed, permitting escape into the atmosphere of the gaseous products of the explosion. Where, on the other hand, the charge has failed to detonate properly (whether from an insufficient number or distribution of the detonators in a large charge, from deterioration of the explosive from damp or other cause, from imperfect tamping or the operation of other factors), the surface may not be broken, and the gases formed are forced under pressure into the surrounding broken-up ground from which they make their way sooner or later into neighbouring galleries. the leakage of gas into the workings sometimes continuing over a period of many days and being aided, as has been noted already, by factors such as a falling barometer and a rise in the level of the subsoil water. In an impervious stratum such as clay, which occurs largely along the northern sector of the Flanders front, the difficulties met with owing to the late presence of gas in the workings after a blow (as the explosion of a small mine or camouflet is often termed) are very slight compared with those occurring where the galleries run through chalk or other substances of a porous or permeable nature.

In the two examples here described the gas must have existed in some such "pocket," but was liberated in such large quantity that the men working at the face were rendered comatose with great suddenness, and when an officer, Captain P. T. Hough, M.C., R.E., had his attention directed to the occurrence he heard, he tells me, the stertorous breathing of the unconscious men as he was coming along the gallery, and before he had actually come in sight of either of them.

Captain Hough's report.—X was originally an incline 90 ft. long dipping 1 in 3, at the end of which was a 60° shaft going to a total depth of 45 ft. From this inclines were drawn in the form of a V. On April 26th, 1916, the enemy blew a large charge about 120 ft. from the shaft. On June 1st the left branch was blown with a charge of 20,000 lb. of explosive,[4] being then 110 ft. from the shaft and about 75 ft. from the surface. The shaft, although tamped, was so badly damaged as to make too long a process recovering it. Two inclines, 1 in 1, was accordingly started from the old shaft-head. Men frequently complained of gas, and two or three mice and canaries were lost. Work was continued in the left branch; several men were gassed, one or two having to go to hospital, during the days following. Most of these men complained of feeling very sick and even vomiting before a headache developed. In most case a sleep in the fresh air and rest put the men all right.

On June 30th I went down to listen in the left branch. The facemen complained of having felt sick from effects of the gas. I listened in this branch for about ten minutes, and then went into the right branch, travelling about 90 feet. Five minutes later I was called for from the junction, and on going into the left face I found the two facemen unconscious, with every limb twitching violently and the breathing stertorous. I heard the breathing even before seeing the men. With some difficulty we got them to the junction whilst the stretcher was being brought down. One of the two men was sick whilst being taken out into the trench and still unconscious.

Those of us who had taken the men out of the mine were very exhausted and strongly inclined to vomit on reaching the fresh air. On reaching the trench oxygen was administered until breathing became normal. The men were then carried down to the dressing station, where the other man was sick, though still unconscious. It was noticeable that their faces were quite a deep pink in colour.

The men were then taken to a well-ventilated dug-out and put in charge of stretcher-bearers. One of them woke up during the night to urinate, but the other slept on until well into the following afternoon. They were then sent to hospital.

7/7/16.

The story given by the two men themselves, however, when seen three days after they had been gassed, is to the effect that while at the mine face together they began to feel dizzy and came out into the fresh air. After about half an hour, one of them still feeling dizzy, they returned to the working face, and after working there for about 20 minutes became unconscious and had to be carried out. This occurred, so far as I can gather, about 7 o'clock in the evening; the one says that he remained unconscious (or rather sleeping) till 1 o'clock the next afternoon, while the other maintains that he was unconscious for 20 hours. Three days after the gassing they both complained of a feeling of debility, with headache and slight pains across the front of the chest. Both were constipated; one had vomited as late as two days after having been gassed; in neither was there any elevation of temperature, one of the two having his temperature subnormal, the thermometer registering 97·2° F.

Thirteen days after the cases of gas poisoning recorded above there was a further series of cases occurring in the same situation. On July 13th the ventilating pump was stopped for a short time in

[3] For comparison it may be mentioned that the gases from a blast-furnace contain from 27 to 36 per cent. of carbon monoxide.

[4] The enemy is known to use charges of from 4000 to 15,000 kilogrammes; their explosives being donarite, westfalit, trinitroanisol, and glukauf, as has been proved by taking them over along with a district. We generally, but not invariably, used ammonal

order to enable listening to be carried out without interruption by extraneous sounds. Within a short time two officers and a private were gassed, none of the cases being serious. Both the officers complained of headache, palpitation, and temporary debility, but were soon all right, and were able to carry on with their duties. From the private a more detailed story was obtained. He says that he was gassed at his "place" in the face" while engaged in listening. He felt pains in the head and ached all over, and so came out into the fresh air. On coming out he fell, and lay where he was for about five minutes; he then got up and walked for about 30 yards, when he felt so exhausted and had such palpitation that he had to sit down. The next time he got up he walked a little farther, perhaps 50 yards, before he had to sit down again and rest. Then he proceeded farther and got a drink of hot tea, which he vomited in about half an hour. The next morning he was aching all over and could not get up, so he spent the day in his billet. The following day he felt weak and had slight headache, with slight looseness of the bowels; his temperature was 97°.

Illustrative Cases.

The following are two striking examples of the way in which the gas collects in cracks in the chalk, from which later on it works its way out and causes symptoms among those working in the vicinity. The case in which the man was struck down at once by the gas issuing from a crack that he had uncovered is particularly interesting, as in these foudroyant cases of gas poisoning the test animals taken down into the galleries naturally fail to give preliminary warning of the presence of the gas, and for this reason their value as indicative of its presence has sometimes been discounted.

M. L., aged 43 years, was gassed two days ago while taking out the tamping from a mine that had been blown four days previously. While removing the tamping he came on a crack in the floor of the gallery, "and the gas just spewed out," rendering him immediately unconscious—foudroyé, to use Brouardel's description. He remembers nothing of what happened, being carried out comatose, and coming to during a two hours' rest in a dug-out. He was sent to hospital, returning from there yesterday[5]; is weak; sweats profusely and has no appetite.

J. K., aged 22 years, was engaged yesterday in driving a gallery through the chalk near an area that had been disturbed by the blowing of a camouflet a week before. There were two or three long cracks in the chalk a quarter of an inch wide and running obliquely and vertically along the entire length of the face, the result of the explosion. After working for two hours he began to have a slight headache, and at the end of the shift felt very feeble and had weakness of his legs. On coming into the open air he felt worse and sat down in the trench for a quarter of an hour before proceeding farther. On getting to the dug-out he could not eat, but had a drink of tea. After lying down for six hours he felt no better and was sent back to billets. This morning feels weak on the legs, has slight headache, and complains of tightness in the chest. Is pale and appetite is poor; otherwise his condition seems very fair. Temperature 98·4° F. The officer who sent this man out of the trenches believes that he is malingering.

Carbon-monoxide Poisoning from the Use of Blasting Charges in Military Mining.

The following is a report on carbon-monoxide poisoning as caused by the use of blasting charges on the working face during the military operations carried out by tunnelling companies. While driving a tunnel footage may be obtained in one of two ways, either by straightforward pick and shovel work, or by breaking up the material at the face by means of blasting charges placed in borings and suitably tamped in. The latter method is specially useful where a gallery is being driven through a hard stratum, and where working in chalk it is found that this becomes progressively harder and more compact in the deeper levels.

As has been shown, a wide range of explosive substances, from old-fashioned gunpowder, on the one hand, to the modern high-explosive compounds on the other, generate carbon monoxide on detonation, owing to their containing insufficient endogenous oxygen to oxidise completely all their carbon atoms during the sudden regrouping of elements that occurs when the explosion takes place. The explosion results in the liberation of large volumes of hot gas (varying in quantity for each kilogramme of explosive used from 200 litres at normal temperature and pressure in the case of some varieties of gunpowder, to 859 litres in the case of gun-cotton), containing a proportion of carbon monoxide that varies between very wide limits, but which may in some cases be as much as 40 per cent.; in quantities, in fact, which are as high as, or even higher than, the amount present in the flaming gusts of gas evolved from the top of a blast furnace. Naturally the presence of this gas in mine galleries after an explosion can give rise to serious trouble, which, however, may be largely guarded against by following the precautions that are laid down, and by resource to various types of safety apparatus when work requires to be pushed on in a poisonous atmosphere.

Not only is this toxic gas produced by the explosion of a mine, whether one of our own or one fired by the enemy, but carbon monoxide is present in the fumes given off by many of the blasting charges at the working face of the mine gallery. An exception must be made in the case of dynamite where this has detonated properly, as theoretically this substance, owing to the high oxygen content of the nitroglycerine it contains, should completely oxidise all the carbon present into CO_2, and have enough oxygen left over either to be liberated as such or to form, by combination with the nitrogen present, a certain quantity of the higher oxides of nitrogen; these oxides of nitrogen, although highly toxic, are to a certain extent brought down by moisture, and are at once fixed and rendered innocuous in contact with any of the carbonates of the alkaline earths, such as are abundantly present where work is being carried out in the chalk. With blastine, gelignite, and cheddite, all of which are used in working on the face, it would appear that a certain amount of carbon monoxide is formed, which in a small gallery may, even in the presence of good ventilation, give rise in susceptible persons to minor symptoms of poisoning, sufficient, perhaps, to interfere with their working for a longer or shorter period. Although cheddite contains chlorate of potash in addition to its other constituents (nitrotoluene and a resinous body), its use at times gives rise to symptoms similar to those met with where other explosives have been employed, and which are unquestionably the result of the presence of carbon monoxide in the fumes. Two sticks of cheddite, weighing together only 100 g., detonated on the working face, have been known to evolve sufficient carbon monoxide to affect a man engaged

[5] These dates refer to notes taken at the time.

afterwards in clearing away the broken-down chalk loosened by the explosion. There is no question, however, that some men are more easily affected by the toxic fumes than others, in the same way that some men, more than others, have a tendency to exaggerate their symptoms.

The Effect of Certain Blasting Charges in C.O. Poisoning.

The following examples are illustrations of the effect of such blasting charges in giving rise to "mine-gas poisoning" from carbon monoxide:—

CASE 1.—Sapper J. M., aged 33 years. Two days ago was gassed with CO on going into mine gallery two hours after a blasting charge of 1½ cartridges of cheddite had been fired in a borehole. He went up to the face and did a little work among the broken chalk, when he became groggy at the knees and his head began to spin. The gallery was properly ventilated at the time. He came out of the mine, but when he got to the bottom of the shaft he needed assistance. On getting into fresh air he collapsed and does not well remember what happened. In about an hour he was all right again except for a headache, but rested for the remainder of the shift. Now feels weak about the legs and has a very poor appetite; is drowsy and tired, and has slept more heavily at nights since being "gassed." Is constipated. Temp. 98° F.

This case is a somewhat remarkable one owing to the length of time that elapsed between the blasting of the charge and the man being gassed. The reason is probably that there was a quantity of the gas forced into and among the broken chalk, and that when he began to stir it up with his shovel enough carbon monoxide was disengaged to give rise to symptoms. He was probably stooping down over his work and would inhale the fumes directly into his lungs.

CASE 2.—Sapper I. B., aged 24 years. (This man is naturally pale and nervous, and has an irritating nervous tic which consists in constantly smacking his lips loudly when spoken to and after giving any reply.) Two days ago was working at the face in the mine ten minutes (or so he says) after two blasting charges of cheddite had been exploded to break up the material at the face. The smoke was "working out very steady" as he worked. After half an hour at this work the shift finished and he came out. During this time his head had been spinning, but he had not felt badly any other way. On getting into the fresh air he fainted suddenly. On coming to he walked slowly down to the aid-post in the trenches, but when half way there had to stop for five or six minutes owing to a fresh accession of faintness. Now complains of pains in head; tongue and hands are tremulous; temp. 99° F. The following day his temperature was 98·8°, and he was otherwise much about the same.

CASE 3.—Sapper G. L., aged 24 years. Has a septic mouth, with diffuse toxic pains and headaches. Regardless of true ætiology, he attributes his discomforts to "eating the smoke" (i.e., to use another of his phrases, "swallowing a mouthful of the smoke") of the cheddite charges used for blasting in the mines, and says—in this case probably correctly—that he always gets headaches when he has to work where a charge of cheddite has been exploded recently.

CASE 4.—Pte F. S. (attached infantryman), aged 22 years. On the previous day was down a mine when a blasting charge was fired at the working face about 50 yards away. About a quarter of an hour afterwards he resumed his work of pushing a trolley loaded with bags of broken chalk from this face to the bottom of the shaft; while employed at this he became short of breath and began to feel weak; and when, 10 minutes after he had restarted working, white smoke from a charge blown in another gallery reached him, he felt so weak that he came out of the mine of his own accord. While climbing the ladder in the shaft he felt as though he might collapse and fall off at any moment, and on reaching the open air he had to lie down for 10 minutes. At present he is very confused and mixes up his story, so that it is with the greatest difficulty that any sense is got out of him; to get this story took over half an hour; he says that he has taken no food since being gassed, not owing to any feeling of sickness, but to complete loss of appetite. Tongue dry and denuded; bowels regular; temp. 98·2° F.

Carbon-Monoxide Poisoning in Civil Mining.

In mining operations in civil life carbon-monoxide poisoning is not unknown as the result of the use of blasting charges on a working face, but in these cases the quantity of explosive is very much greater than in the charge dealt with here. For instance, in the mines of Johannesburg a charge will consist of from 40 to 60 lb. of blasting gelatine distributed in 14 or 15 drill holes on the face and all detonated within a few seconds of one another by time fuse. The quantity of carbon monoxide evolved by the explosion of such a quantity of blasting gelatine may be considerable; but the quantity of deleterious gas generated from even a stick and a half or two sticks of explosive at the working face in one of the galleries in military mining is, as is pointed out here, quite sufficient to give rise to trouble.

The following are notes on the fumes of some explosives used in blasting on the working face in military mining operations, compiled for me by Lieutenant W. A. Ellison, R.E.

Blastine.—This gives an exceptionally dense fume of a white colour, and is very difficult to clear, even with a strong current of air. It is impossible to breathe long in these fumes, which cause intense headache.

Dynamite.—The bluish-white fumes from this are very heavy and remain low. With this explosive I find it is possible to breathe fairly well long before the gallery is clear. In this respect it is unlike "blastine." The effect of these fumes is to cause vomiting, but very little headache.

Gelignite.—This explosive does not give a very dense fume, and it is possible to get into a face quite soon after an explosion without any ill-effects. It clears itself fairly quickly even without a current of air. The fumes are white in colour.

Cheddite.—As regards fumes this explosive is the best. Many times after firing I have at once gone to the face and remained there without the slightest inconvenience. The yellowish fumes seem to clear themselves much quicker if gelignite has been used with the cheddite, but the fumes are much denser than when either explosive is used singly.

Note.—These papers were originally written in 1916, but permission to publish was withheld by the War Office as active warfare was then in progress.

RICKETS IN GERMANY:

A STUDY OF THE EFFECTS OF WAR ON CHILDREN.

BY PROFESSOR DR. ENGEL,
DIRECTOR OF CHILD WELFARE AT DORTMUND, WESTPHALIA.

As food conditions began to get difficult in Germany medical men directed their attention at once to the effects which might be produced among the civilian population. It was to the nation's growing youth that thought especially turned, in the natural apprehension that there it might soonest lead to harm, and in consideration of the fact that the coming generation was the most precious possession of the State and must be kept in health, whatever happens.

For a long time no special effects on children were to be recognised. The weight at birth of infants remained, in spite of the hypo-nutrition of

their mothers, practically constant. Only in the very latest period of the war did weakly children of under-weight begin to appear in greater number. The average of weight of new-born children, as observed in the lying-in hospitals, was then reduced. The general health of infants was good, the mortality-rate low. The number of births had fallen sharply, a circumstance which always reacts favourably on infant mortality. In addition to this, chiefly in consequence of the shortage of cow's milk, and encouraged by a special grant from the State, breast-feeding became more prevalent. The mortality-rate of infants was permanently reduced.

The position of children between two and five years of age, however, became more and more unfavourable. In spite of the fact that their number also fell and therefore, other things being equal, their prospect of life became better, the mortality-rate did not fall, but from 1915 on practically reached the infantile mortality-rate, and even exceeded it, of the year 1918. In normal times the mortality of the two-to-fives was not half as great as that of infants.

Rickets as a Cause of Death.

When the statistics are examined, it is seen that the increased number of deaths are not referred to the group of diseases which claims so many victims among children—namely, the infectious complaints.

FIG. 1.—Photograph of a child, 2 years and 3 months old, with rachitic deformity of the chest. To the perimetric tracing is added for comparison that of a normal child of 2 years and 9 months.

There is to be noticed instead an increased number of entries of death attributed to inflammation of the lungs. Here, as is so often the case in death statistics, the term used does not quite meet the case, a fact which will immediately appear.

The experience at the clinic directs our attention to another chain of circumstances. From 1917 on the increasing occurrence of rickets became more evident. In some degree at the present time almost all children up to the most well-to-do are affected. As their social position becomes less favourable rickets becomes general, and assumes severer forms. These cases it is which are our chief concern. On the one hand, there are children who are in the highest degree backward in growth, and yet do not show coarse bony change apart from massive thickening of the epiphyses. These children are unusually small, but on the whole well proportioned. Their musculature is scanty and flabby. From the shapelessness of legs, and

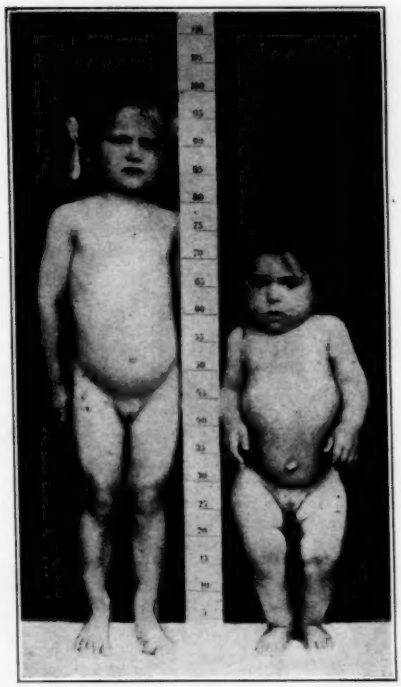

FIG. 2.—On the right, a rachitic dwarf, 4 years of age, after three months' treatment in hospital. On the left, a normal child of the same age. The height is given in centimetres.

especially of the calves, it may be gathered that the children have never made any use of their lower limbs. The spinal column also frequently lacks the support of the musculature, so that the children fall together more or less and become highly kyphotic.

In other cases, softening of the bones is more in evidence, in the limbs but more especially in the chest. All grades of deformity occur up to the most marked bending and bowing of the legs, of the spinal column, of the chest, and of the arms. But often the thorax is so badly affected that all other changes sink into the background. We have then children before us who are far too small for their age and in whom the thorax is seriously deformed. Under the influence of the negative pressure arising during inspiration in the thorax, the chest is crushed in from the sides and its cubic content much reduced. The lungs can no longer expand, with the result that the children are permanently dyspnœic. Even should no further complications arise, death may ensue with symptoms of acute air-hunger. Should complications be added to the existing respiratory insufficiency, be it only a slight bronchitis or a febrile illness, such as measles, death is the more likely to supervene. The picture of air-hunger is then so severe that as a rule the medical attendant assumes the presence of "inflammation of the lung" when it

is only a question of pure respiratory insufficiency in consequence of a yielding thorax. At the autopsy we have often been able to satisfy ourselves of this fact. The ribs are weak and the chest falls widely open when the incision is made on the post-mortem table. In the pleural cavities are then seen the flabby, badly-ventilated, but not inflamed lungs. It is this increase of deaths of rachitic children

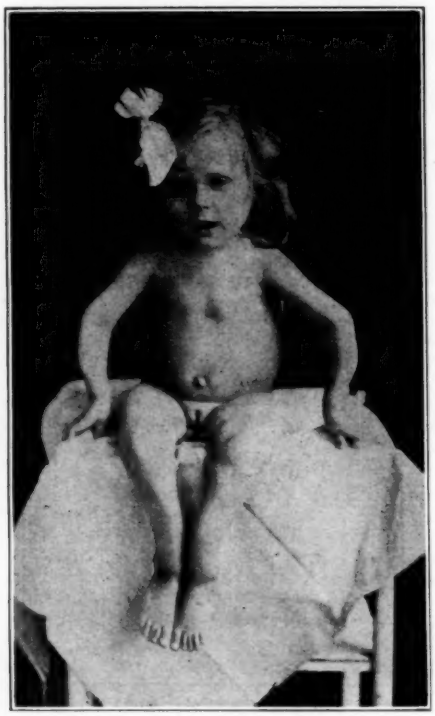

FIG. 3.—A girl, 6¾ years old, and unable to walk. This child took more than two months to learn the use of her legs.

in consequence of respiratory insufficiency that causes the increase of recorded deaths from "inflammation of the lung," and which makes it probable that the high mortality of little children is really to be ascribed to rickets.

Rickets as a Cause of Crippling.

Rickets as a cause of death is bad enough, but still more perturbing is the high number of cripples with which we have to reckon. First of all, the prodigious number of dwarfs. Observations, now going back a year or more, show that the growth tendency of rachitic dwarfs seems to be slight even after recovery from the condition which gave rise to the dwarfing. No final judgment can yet be passed; nevertheless it already seems probable that complete reparation will not occur. These dwarfs will in the majority of cases remain of lessened citizen value. Similarly with the numerous children in whom severe deformity of the skeleton has occurred. Those also, who in addition are frequently dwarfed, will not become full-valued members of society. On the contrary, it is to be feared that a not inconsiderable proportion of the young people of to-day will later become a charge upon the State.

When an attempt is made to form an exact position of the extent of those affected the ability to walk affords a great criterion. In a town such as Dortmund, in which the inhabitants consist chiefly of manual workers, and which has a large youthful population, the number of small children amounts to some 10 per cent. of the population, or say 30,000. From the practice of the clinics and consultations, it is estimated that more than 10 per cent. of these children cannot walk. Numbers of them are three, four, or five years old, some even older. Fig. 3 shows a 7 year old child unable to walk.

As to the cause of the prevalence of rickets no doubt can arise. The food-supply, insufficient in amount and faulty in composition, which was all there was to give to children during recent years, the lack not only of fat and milk, but also of fresh vegetables and milk, are without question to be blamed. Most crucial seems to have been the lack of fresh milk. To this conclusion above all points the fact that rickets is far more widespread than before among the children of the well-to-do also. Even in the worst times much could be had for money, but not milk. However much we were inclined earlier to shelter our rachitic patients from excessive ingestion of milk, yet we must now admit that too great a lack causes the disease. Should doubt arise as to the effect of the relative starvation, it must vanish when we see how, under the prolonged influence of these harmful conditions, bony disease occurs in increasing extent among the higher age-groups also.

Treatment has always shown itself of real worth, when the children could be brought to a clean and healthy manner of life with sufficient nourishment. Hospital treatment has, in consequence, shown good results, although existing institutions do not avail by far to accommodate the great number of those requiring it.

A CASE OF

SEVERE CEREBRAL TOXÆMIA,

FOLLOWING AN INTRAVENOUS INJECTION OF NOVARSENOBILLON.

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With a Note by

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AT a time when the treatment of syphilis by arsenical compounds is being conducted on an increasingly vast scale, the details of the following case should be of interest. The type of toxic reaction described is fortunately rare. It occurs almost always some few days after an intravenous injection and, as a rule, ends fatally.

The special points of interest are that the recognised methods of treatment were of no avail, and that immediate improvement, and eventually complete recovery, followed the two measures adopted, which were: (1) continuous inhalation of oxygen; (2) an intravenous injection of urotropine and caffeine.

The patient, a healthy young man, 19 years of age, was sent to Haslar on July 31st, 1919, on account of manifest signs of syphilis, discovered at an examination for draft. Examination in hospital showed a slight degree of general glandular enlargement, a macular syphilide on trunk and limbs, and erosions of anal mucosa. Wassermann positive; urine normal; nothing else abnormal detected. No previous history of fits. On August 2nd 0·45 g. of N.A.B. was given intravenously without reaction. Four days later 0·9 g. was administered, also intravenously. No reaction. On the night

of August 8th (approximately 56 hours after the second injection) the patient vomited. Temperature, 103·8° F. Next morning he vomited again. At 7.30 A.M. on the 9th he was found in a fit, "foaming at the mouth." Details of this attack are not available, as he was not seen in it by a medical officer. He slept most of the day, the temperature rising from 99° in the morning to 103° in the evening.

Further events were as follows: August 10th, *9.10* A.M., severe epileptiform seizure (second), preceded by cyanosis and contortions of the face and contractions of the left arm. Patient bit his tongue in the fit. *9.20:* Typical post-epileptic state. Pulse 80. Temperature 99°. *10.10:* Macular (arsenical) rash on left forearm. *11.45:* Patient conscious, but dull and lethargic; answered questions after a long interval. Rash generalised and very irritable; patient scratching skin, especially of perineum. *12.50* P.M.: Another fit (third); duration of convulsions, two minutes. *1.20:* Semiconscious; incontinence of urine; face cyanosed; restless; signs of cerebral irritation. *1.23:* Another fit (fourth). Duration, 1 minute. *1.30:* Temp. 100·6°; left arm twitching; patient unconscious. *2:* Semiconscious. *3:* Apparently conscious; would not answer questions, open mouth, or swallow; pulse 76, volume full. *4.15:* Another fit (fifth), lasting one minute; incontinence of urine; temperature 100·6°. *6:* Temperature 102°, pulse 92. *9:* Signs of cerebral irritation. August 11th, *4* A.M.: Another fit (sixth); right side of body more convulsed than left. *4.30:* Generalised muscular twitchings. *5.10:* Restless and irritable. *9:* Incontinence of urine and fæces; pulse 84; temperature 102·4°; unconscious; less irritable. *9.35:* Violent fit (seventh); deep cyanosis; pulse very feeble, but soon improved. *10:* Unconscious; pulse 80.

Treatment Adopted.

The following recognised methods of treatment had been tried without any signs of improvement: Adrenalin in 15-minim doses, calomel gr. i. hourly, chloral and bromide (by the mouth and rectum), venesection, and lumbar puncture (18 c.cm. of fluid withdrawn). Shortly after the seventh fit, at the suggestion of Surgeon-Lieutenant-Commander Dudley, continuous oxygen was administered, and an intravenous injection of urotropine 1·5 g. and caffeine 0·2 g. in 15 c.cm. of sterile distilled water. The course of events thereafter was as follows:—

12.30 P.M.: Sudden extreme cyanosis while patient was lying placid and unconscious; pulse 60; cyanosis soon passed off, without any fit developing. (N.B.—Each fit was preceded by cyanosis and distortion of the face. In the seventh fit the patient became black, and this, in association with a temporarily imperceptible pulse, gave rise to the fear that a fatal issue was imminent.)

From this moment onward improvement was steady and rapid.

3 P.M.: Colour normal; signs of returning consciousness. *5:* Patient opened his eyes and stated that he was "all right." During the night he slept quietly. Incontinence of urine at *1* A.M. on August 12th. At *9* A.M. his condition was normal, and but for incontinence of fæces on the night of the 13th, and relative amnesia for 14 days, his recovery was uneventful.

Examinations of the Blood, Urine, and Cerebro-spinal fluid.

Blood (August 10th).—Red cells, 6,650,000 per c.mm.; white cells, 19,200 per c.mm.; hæmoglobin, 80 per cent.; colour index, 0·6. No alteration in shape, size, or staining of red cells; two myelocytes seen. Differential leucocyte count: 68·3 per cent. polymorphonuclear cells; 26·7 per cent. small mononuclear cells; 5 per cent. large mononuclear cells.

Arneth count:	1.	2.	3.	4.	5.
	66	25	8	1	0
	91		9		

Normal (40). Normal (60).

Arneth count indicates a very marked toxæmia.

On August 12th, the leucocytes numbered 10,300 per c.mm. Differential count: 58·5 per cent. polymorphonuclear cells; 34·0 per cent. small mononuclear cells; 3·0 per cent. large mononuclear cells; 4·0 per cent. eosinophiles; 0·5 per cent. basophiles.

Arneth count:	1.	2.	3.	4.	5.
	29	36	27	8	0
	65		35		

The whole count suggests that the toxæmia is less acute.

August 14th: Leucocytes, 6300 per c.mm.; no important changes in differential count.

Arneth count:	1.	2.	3.	4.	5.
	26	39	29	6	0
	65		35		

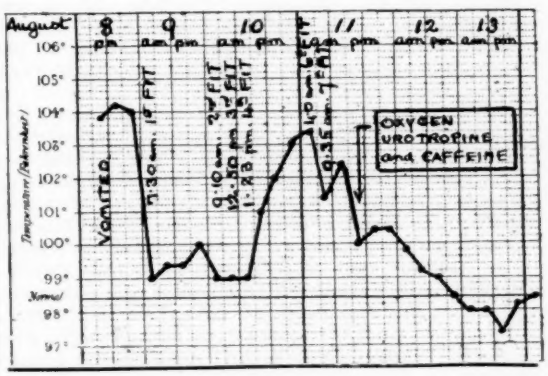
Urine (August 11th).—Acid, specific gravity 1015; trace of albumin; no sugar; urea 2 per cent.; large deposit of uric acid and amorphous urates. (It has already been noted that the urine, prior to treatment, contained no abnormality.)

Cerebro-spinal fluid.—18 c.cm. of clear colourless fluid. A mere trace of blood settled on standing. Normal amount of reducing substance and globulin. Cells: 5 lymphocytes and 110 erythrocytes per c.mm. Wassermann: Negative (using 0·8, 0·2, 0·05, and 0·012 c.cm. of fluid).

Remarks.

The amnesia at first was complete as far as the illness was concerned; the patient could remember nothing. He recalled being at his depôt, but he could not recollect being sent to hospital, nor any incident which occurred in hospital prior to the onset of the toxic symptoms. He had a vague idea that he had seen me somewhere before, but he could not recall the circumstances. He was greatly mystified as to why he was in hospital and how and when he arrived there. On August 26th (14 days later) he told me that he had suddenly remembered all the details of his case up to the day of the second injection of N.A.B.

The chart records graphically the features of the case in relation to the treatment. The improvement which followed the continuous administration of oxygen, and the injection of urotropine and



caffeine directly into the blood-stream, is a striking fact. That it was due to one or other of these measures, or to both, seems a not unreasonable assumption. The prompt treatment of future cases of this type by these two measures may throw further light on the matter. The administration of oxygen was not stopped until 9 A.M. on August 12th, when the patient had been conscious for eight hours.

After History.

The patient returned from convalescent leave on Oct. 5th, 1919. He looked extremely well. His memory was normal.

Wassermann (Oct. 10th), weak positive.

Urine (Oct. 8th).—Cloud of albumin; the deposit contained a few crystals of calcium oxalate; no cells. Oct. 12th: Nil, abnormal.

Blood (Oct. 7th).—Leucocytes, 7200 per c.mm.; polymorphs, 36·8 per cent.; small mononuclears, 59·2 per cent.; large mononuclears, 3·2 per cent.; eosinophiles, 0·4 per cent.; basophiles, 0·4 per cent. (The excess of small mononuclear cells may have been associated with latent syphilis.)

Arneth count:

1.	2.	3.	4.	5.
19	29	31	18	3
48		52		

He was discharged to duty on Oct. 14th. 1919.

Note by Surgeon Lieutenant-Commander DUDLEY.

These cases of delayed 914 poisoning are probably accompanied by anoxæmia—i.e., insufficient supply of oxygen to the tissues. In the case just described the attacks of cyanosis are the chief evidence of this anoxæmia, which may well be of the type that Haldane[1] describes as due to the alteration of the dissociation curve of oxyhæmoglobin, whereby oxygen diffuses less easily into the plasma. The highly acid urine with a very heavy deposit of uric acid crystals suggests the possibility of a breakdown in the mechanism controlling the hydrogen-ion content of the blood, which in turn prevents the respiration centre from performing its function normally. The lack of dyspnœa, the loss of consciousness, and the amnesia resemble carbon monoxide poisoning, which is a definite anoxæmic condition. It was these observations, together with a favourable experience of the use of oxygen in influenzal broncho-pneumonia, also an anoxæmia, which suggested that oxygen might be of use in this case. The urotropine was given, as H. Michel[2] had reported successful results with it in acute mania and delirious influenzal broncho-pneumonias, supporting his clinical experience by animal experiments. Intravenous urotropine produces a profound diuresis, and H. Michel thinks toxins are eliminated this way via the kidneys. Should this man's recovery be in any way due to the therapeutic agents employed, it may reasonably be supposed that the oxygen held in check the anoxæmia, while the urotropine stimulated the kidneys to remove some poisonous product resulting from the arsenical injection. As far as the experience of one case goes, it would seem that of the two agents employed the oxygen was the more useful. The Arneth count in this case is interesting as showing how a chemical poison acts the same way as a microbial one on the nucleus of the neutrophile leucocyte. Another arsenic compound, AsH_3, acts exactly the same way.[3] A comparison of the Arneth counts on August 10th and 12th is strong evidence that a large quantity of deleterious substance must have been got rid of by the organism between those dates. While admitting the danger of drawing conclusions from a single case, considering the fatality and anxiety these severe toxic reactions cause, the use of oxygen in these reactions is worth a further trial.

[1] Brit. Med. Jour., July 19th, 1919.
[2] La Presse Médicale, March 10th, 1919.
[3] Journal Industrial Hygiene, September, 1919.

THE SCHICK REACTION

FOR THE DETERMINATION OF SUSCEPTIBILITY TO DIPHTHERIA.

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THE object of this paper is to show the results of an investigation made on the subject of the Schick test[1] with a view primarily to the forming of some opinion as to its reliability, its difficulties, and its suitability for application in general and hospital practice, together with the advantages that might be expected to arise therefrom.

The test is performed by injecting a very small dose of diphtheria toxin into the skin, and noting after a certain lapse of time whether there is a reaction produced or not. If there is a reaction the test is said to be positive, and this result indicates that the subject lacks natural antitoxin immunity, and is therefore more likely to be susceptible to diphtheria. This reaction is due to the irritating effect of the toxin on the skin cells. When the patient has circulating in his blood natural diphtheria antitoxin the injected toxin is neutralised, so that no local reaction is produced. The test is then said to be negative, and the subject to be immune to diphtheria.

The toxin injected is a ripened one which has been recently carefully standardised and its minimal lethal dose (hereafter indicated as M.L.D.) accurately determined. The M.L.D. is the smallest amount of toxin that will produce death in a 250-gramme guinea-pig within four days. Such a toxin is taken, and suitable dilutions made until we have a diluted toxin containing one-tenth of an M.L.D. in 1 c.cm. The amount actually injected in the test is 0·2 c.cm. of this diluted toxin, which therefore contains one-fiftieth of an M.L.D.

Technique and Interpretation of the Schick Reaction.

This injection must be intracutaneous and of accurate dosage, and is best made by means of a fine needle fitted on to a hypodermic syringe graduated in tenths of a cubic centimetre. If the injection is made subcutaneously it is quite useless. A satisfactory injection should leave a round, white wheal the size of a large split pea, sharply defined, with the pores showing up well. The most convenient site for the injection is the flexor aspect of the forearm just below the fold of the elbow. The skin surface should be cleaned with a little alcohol or ether previous to the injection and the needle introduced very obliquely, the lumen superficial and when in position showing slightly through the upper layers of the skin. The operation is a painless one; 0·2 c.cm. having been injected the needle is withdrawn. The arm is then inspected after varying periods and a note of the readings made.

A typical positive reaction begins to show distinctly in from 24 to 48 hours and reaches its height about the third day. It is a sharply circumscribed area of redness with definite, though slight, infiltration, circular or somewhat oval in shape, and varying from half to one inch in diameter. This persists for about a week and on fading leaves a brownish, pigmented area which shows traces of desquamation. This pigmented area persists for a month or longer. A negative reaction is shown by the absence of redness and infiltration; after 24 to 48 hours there is nothing to be seen except perhaps a point of redness marking the needle track.

The reaction previously described was, as stated, a typical positive one. To distinguish such from a negative presents little difficulty, but in actual practice two sources of difficulty arise. The first is that in quite a

number of cases the positive reaction though present is not very well marked and infiltration is absent. If, however, after the lapse of 48 hours, there has been a definite area of uniform redness, even though it be faint, which persists for several days and is followed later by pigmentation, the reaction is to be classed as positive. The crucial point seems to be that in a real negative test there is nothing to be seen at any period after the injection.

The second and more serious difficulty is the occurrence of "pseudo-reactions" which are non-specific and are believed to be due to the bacterial protoplasm or other protein substances in the toxin, and to be rather of the nature of local anaphylactic phenomena. A practised eye can soon pick out these pseudo-reactions in the majority of cases as they present quite a different picture from the true positive reaction. The redness of the pseudo-reaction appears earlier, reaching its height in from 24 to 36 hours; in shape it is large, oval, not definitely circumscribed, but fades away into the surrounding skin or has round it a secondary areola which is often well marked. There is frequently a large amount of induration associated with it. Its disappearance, like its onset, is rapid, and if it leaves any pigmentation at all it is an indefinite, faint, rather bluish area which does not show scaling. Pseudo-reactions are much more frequent in adults than in children. Though clinical differences are in the majority of cases quite sufficient to distinguish the true from the pseudo-reaction, and one would lay stress especially on the time element, when large numbers of these latter occur, as in dealing with groups of adults, it may be well to use "controls" of heated toxin. The toxin is heated to 75° C. for ten minutes and the heat destroys the specific toxin, but leaves unchanged the proteins to which the pseudo-reaction is due. The control injection is made on the other forearm. There may be no reactions—a clear negative. The two may be precisely alike and go through similar changes simultaneously—pseudo-reaction. The control may show no change and the other give greater or less evidence of a positive reaction. There may be reactions with both, but in the arm receiving active toxin there is a circumscribed area superadded to the pseudo-element which later shows pigmentation—a combined reaction—positive, though rare. As after a little experience it is quite easy in the majority of cases to distinguish a pseudo-reaction from a true positive clinically, the control test need only be used as an after-check in doubtful cases.

It is important to keep careful records and some definite scheme should be adopted and adhered to. Our records were kept in columns under the following headings:—

Name.	Age.	Date.	Ward.	Readings—			Remarks and result.
				24 hrs.	48 hrs.	10 days.	

It is probable that 72 hours for the second reading would be better than 48 hours, as it would allow more time for a pseudo-reaction to disappear and a true reaction to develop, thus aiding differentiation. Under "Readings" we indicate the amount and degree of redness and infiltration, whether that of a true or pseudo-reaction by an arbitrary system of signs such as: +++, ++, +, −. The final result is only entered up at the end of ten days after consideration of all three readings. A most helpful point is what might be called the gradient of these readings. In a positive case the second reading shows an advance on the first and the third reading definite pigmentation, an "upward gradient" such as: +, ++, ++; while a pseudo-reaction tends to be downward as: +++, +, −.

Results of Practical Experiments.

Having given a general idea of the Schick test, it is now proposed to give in more detail our practical experience with it. The tests were performed at the Edinburgh City Hospital, the majority upon patients newly admitted to the scarlet fever pavilions. In addition, tests were carried out in other wards for the purpose of detecting susceptibles and protecting them with prophylactic doses of antitoxin, the need having arisen. Some tests were performed on the medical and nursing staffs.

The first difficulty was to secure a satisfactory toxin. In a series of 200 cases the test was performed with a commercial toxin put up for the purpose of the Schick test by a large drug firm. From the first it was evident that either this toxin was weak or that the susceptibility of children here was very much less than that of American children as recorded by American workers on the subject. The reactions were comparatively few in number and in many cases not very well marked. The technique adopted was precisely that which has been described. We were fortunate in having our own impression of the weakness of the toxin confirmed by the opinion of Dr. Abraham Zingher, of the New York City Department of Health, whose experience of the Schick test is unrivalled, and who, by a happy coincidence, visited the hospital while these tests were in progress.

The results of this first series are shown in Table I. A column is added for comparison showing percentage results for a large series of cases (1200 in all) from the scarlet fever wards of the Willard Parker Hospital, New York, as given by Zingher.

TABLE I.—*Chiefly Scarlet Fever Patients. Weak Toxin.*

Age.	Total.	Negative.	Positive.	Per cent. positive.	Per cent. positive (Zingher).
6 months–1 year	3	2	1	33	50
1–2 years	12	7	5	42	68
2–4 ,, ...	40	27	13	32	66
4–6 ,, ...	23	19	4	17	53
6–8 ,, ...	27	22	5	18	37
8–15 ,, ...	59	52	7	12	28
15 and over ...	16	16	0	0	24·5
Total	180	145	35	19·5	45·3

From these results the conclusion was drawn that the toxin we were working with was under strength or otherwise unsatisfactory, a conclusion which was suggested by appearances in individual cases as well as by a consideration of the aggregate. Steps were therefore taken to secure a more satisfactory toxin, and I was fortunate in obtaining the help of Dr. R. A. O'Brien, director of the Wellcome Physiological Research Laboratories, who kindly supplied me with a toxin diluted ready for use in the test. From the first it was obvious that we had obtained an active and satisfactory toxin, the individual reactions being well marked and the percentage of positive results much increased. We found also that the toxin kept perfectly well though diluted to working strength for a period of at least five weeks, which was the longest period that we had any one batch in use. This is an important point, as American workers urge the making up of a fresh working dilution every time the test is used. We did not find this necessary, and our clinical readings were checked by laboratory reports, which stated that the toxin showed no deterioration after a much longer interval than the five weeks mentioned. Table II. shows the results of the tests with this toxin on scarlet fever patients.

TABLE II.—*Scarlet Fever Patients Only. Satisfactory Toxin.*

Age.	Total.	Negative.	Positive.	Per cent. positive.
1-2 years	8	0	8	100
2-4 ,, ...	41	9	32	78
4-6 ,, ...	90	27	53	59
6-8 ,, ...	93	39	54	58
8-15 ,, ...	190	84	106	56
15 and over	88	55	33	37·5
Total	500	214	286	57·2

It will be noticed that a large proportion are positive and that the positive reactions diminish with increasing age; they are more frequent among scarlet fever patients than among normal adults. In a series of 60 normal adults only 17 were positive, which gives a percentage of 28, as against 37·5 in the corresponding group of scarlet fever patients.

Abolition of the Reaction by Antitoxin.

One hundred and ten cases, all of whom had previously received therapeutic doses of antitoxin at periods varying from 1 to 70 days before the performance of the test, were tested, and all except one gave a negative result. The exception was a rather doubtful positive showing redness at 48 hours and faint pigmentation at 10 days. It occurred in a child of 6 years who had received 8000 units of antitoxin 26 days previous to the test. A remarkable feature was the large number of pseudo-reactions which appeared in these passively immunised patients. Sixty-one in this series were controlled with heated toxin, and of these 44 (72 per cent.) gave a definite pseudo-reaction. In a series of 104 controlled cases on the scarlet fever side only four showed pseudo-reactions. It would appear that the serum had sensitised the individuals and rendered them hypersensitive to the proteins of the toxin. A few cases among the scarlet fever patients which gave good positive results received 500 units of antitoxin, and were re-tested next day. Of 15 cases so treated all gave negative results, though three showed pseudo-reactions.

A number of cases which had previously been tested were re-tested at periods varying from one to three weeks to see if they gave the same results. Of 60 cases so treated 59 gave similar results, in many cases the actual readings corresponding to a remarkable degree. One case was recorded as negative which had previously been classed as positive. The error of method in moderately competent hands would thus seem to be from 1 to 2 per cent.

The Value and Future Use of the Test.

Some idea of the value of the test may be formed even in the comparatively short period that the patients remain in hospital. It is well known that in spite of all the usual precautions a few cases of mild diphtheria do occur from time to time in scarlet fever wards, and we proved no exception to this universal experience. Among our series of 500 tested cases 11 cases of mild diphtheria, confirmed by bacteriological examination, occurred. Of these 10 had given a good positive Schick, and the other one had been classed as doubtful, as he gave only a small point of pigmentation after ten days, and had not shown definite earlier reaction. Among a series of tests performed on members of the hospital staff, one subject who gave a negative result developed clinical diphtheria, but, as we have previously noted, there is a small margin of error, and it is possible that the case can be explained on that basis. In a ward where three cases of diphtheria cropped up at the same time we did not immunise two close contacts because both had given negative Schicks, and though of susceptible ages (2 and 3 years) neither developed diphtheria.

A certain number of cases were carriers before admission, or became so during their stay in hospital—that is, the diphtheria bacillus was found in their throats or noses on routine examination, but there were no clinical symptoms. Among 32 carriers, 18 were negative and 14 positive to the Schick test. This latter fact shows that immunity may depend on other factors than the presence of antitoxin.

We have had as yet no opportunity of proceeding to what is one logical outcome of the Schick test—the active immunisation of those giving a positive reaction by means of toxin-antitoxin mixtures—but it is hoped that shortly the difficulties will be overcome, and that we will be able to immunise those susceptible members of the hospital staff who come in contact with the disease. Park and Zingher[2] have shown that the great majority of susceptibles can be immunised in this way, though the process may be rather a slow one, and immunity, as shown by the disappearance of a positive Schick reaction and the presence of antitoxin in the blood, may not develop for several months. With such methods of detecting susceptibles and their immunisation it would seem that a new era is dawning in our attitude to diphtheria, the era of satisfactory prophylaxis; and it is this wide view of the Schick test that one would urge. It is more than of merely clinical value, and is therefore worthy of further investigation and trial, especially by those who are concerned with that most important aspect of medicine—prevention.

Conclusions.

1. The Schick test appears to be of definite value in detecting diphtheria susceptibles, and as such has many possible applications.
2. It is easy to perform and free from any danger.
3. A reliable toxin and careful technique are essential.
4. Once the differences between a positive and a pseudo-reaction are appreciated reading is easy, but if there is any doubt controls of heated toxin should be used.
5. The best times for readings are 24 hours, 3 days, and 10 days after the test.

I have to thank Dr. Claude B. Ker, at whose instigation the work was undertaken, for permission to perform the tests and to publish the results.

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DEATH OF DR. G. F. ATCHLEY.—Dr. George Frederick Atchley died recently at his residence, Redland, Bristol, in his eighty-fifth year. He graduated M.B. of London University in 1861, and shortly afterwards commenced practice in Bristol. He was formerly surgeon to the Bristol Hospital for Sick Children, and at the time of his death was honorary consulting surgeon to the Bristol General Hospital. Dr. Atchley had at one time an extensive practice in Bristol and Clifton and was highly esteemed.

THE TREATMENT OF MALARIA IN MACEDONIA.

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PHYSICIAN TO THE ROYAL FREE HOSPITAL; LATE CONSULTING PHYSICIAN TO THE BRITISH SALONIKA FORCE AND TO THE ARMY OF THE BLACK SEA.

IN view of the special interest taken in the treatment of malaria at the present time, it may be opportune to place on record an outline of the methods which, in the course of three seasons' experience, came to be regarded as the most effective in dealing with the disease in Macedonia. In malaria, as in every other disease, the details of treatment are necessarily determined by the special requirements of individual cases, and in the following remarks no more is attempted than to indicate the general lines along which treatment was directed in the various medical units of the command. The first essential in the treatment of every case was found to be the administration of an initial dose of calomel, followed, if necessary, by a saline aperient. This preliminary is of the greatest importance, as, if it is neglected, quinine administered by the mouth may remain to a large extent unabsorbed and inert. In cases of moderate severity quinine sulphate in solution was then given by the mouth in daily quantities of 45 gr. divided into three equal doses for at least three days, and for longer if the pyrexia persisted. The sulphate was chosen for routine use, partly on economical grounds and partly for the reason that the stock of bihydrochloride was for a time limited, and had to be reserved for the special purposes of intramuscular and intravenous injections, and for the small group of cases in which the highly acid solution of sulphate led to digestive disturbances. After the temperature had fallen to normal quinine was continued in the reduced daily dose of 30 gr. until the end of the second or third week from the beginning of [the attack. "Week-end" quinine—that is, 30 gr. daily on two successive days in each week—was then begun and continued for an indefinite period. In the earlier stages of our experience a smaller daily dose of 30 gr. was thought to be sufficient for the initial treatment of cases of ordinary severity, but the great importance of obtaining an immediate maximum effect, especially in primary attacks, was soon recognised, and the smaller dosage was seldom used except in the treatment of relapses of comparatively mild character.

In the treatment of more severe or more persistent cases a daily amount of 60 gr. was given. The whole of this may be administered in four 15 gr. doses by the mouth, or a part may be given intramuscularly. In cases of persistent vomiting or marked digestive disturbance oral quinine is either rejected or remains largely unabsorbed, and the advantages of the intramuscular method are very great. It was found convenient in these cases to give two intramuscular injections, each of 20 gr., one in the morning, the other in the evening, supplemented by 20 gr. of the bihydrochloride by mouth in the course of the day. As soon as the severer symptoms were under control oral administration of quinine was resumed.

It may here be pointed out that in any given case of malaria the amount of quinine and method of administration have to be determined more by the clinical features of the case than by the type of parasite found in the blood. The severest clinical manifestations were sometimes present when the benign tertian parasite only was demonstrable in the peripheral blood, and, on the other hand, a subtertian infection was not infrequently associated clinically with comparatively mild symptoms.

Cerebral Malaria.

On the earliest appearance of cerebral symptoms it was the practice to give quinine intravenously, and there is no doubt that by the prompt employment of this method of treatment many lives were saved. The treatment carries with it certain risks, and it is preferable to give a small or moderate dose in the first place and to repeat it if necessary rather than to give a single large dose. Various degrees of dilution were tried, and the most favourable results were obtained with a solution of 10 gr. of the bihydrochloride in 20 c.cm. of normal saline. Of this solution 15 to 20 c.cm. were injected slowly into the vein. By the use of a fine needle the double purpose was served of facilitating the entry of the needle into the vein and of ensuring slowness of administration. Except in special cases it did not appear that there is any gain in using a higher dilution than that stated above; on the contrary, unfavourable symptoms, such as convulsions and hyperpyrexia, were sometimes observed to follow the introduction of a large volume of fluid in cerebral cases. The intravenous injection should be supplemented by an intramuscular injection, which by its slow absorption ensures a continued quinine effect. Further treatment was determined by the course of the case; in some it was sufficient to continue intramuscular quinine; in others, repeated intravenous injections were necessary. In a few exceptional cases large doses of quinine, up to 100 or 120 gr. in the 24 hours, given by the combined intravenous and intramuscular methods, were needed before the acute symptoms were brought under control: it was uncommon for any unfavourable consequences to follow the use of these somewhat heroic doses. Quinine amblyopia, undoubtedly the most serious complication of quinine administration, was observed in a few instances only, nearly all of which were cases of a severe malarial infection, rendering the use of large doses imperative. With rare exceptions the loss of vision was transient.

Convalescence.—During convalescence a tonic mixture containing iron and arsenic was given, and a varied diet on a liberal scale was found important at this stage in establishing health and preventing undesirable after-effects. In primary attacks it was found desirable that patients should remain in hospital for a total period of at least three weeks, and should not be discharged to convalescent depôt until the temperature had been normal for ten days. In slighter attacks of recurrent malaria a stay of four or five days after the temperature had subsided was usually sufficient. In the more pronounced degrees of anæmia the arsenical element was pushed; this was done either by increasing drop by drop the dose of liquor arsenicalis by the mouth up to the verge of tolerance; or by using an organic preparation, such as sodium cacodylate hypodermically; or, in exceptional cases, by the intravenous injection of galyl. In one or two extreme cases of anæmic cachexia blood was transfused with good results.

Intramuscular quinine.—There was almost a consensus of opinion among clinical observers in the

Salonika command that a given quantity of quinine is more effective and speedy in its action when introduced intramuscularly than when given by the mouth. In the light of this definitely formed opinion it is interesting to note the experience of Captain K. McLay and Captain T. S. Hele, of the Malaria Enquiry Laboratory, who found that parasites disappeared from the peripheral circulation, and that in the healthy subject quinine was excreted more speedily after oral than after intramuscular administration. There is, however, no doubt as to the great value of the intramuscular method in cases of vomiting and other conditions in which intestinal absorption is impaired; when it is desired to introduce a larger amount of quinine into the system than can conveniently be given by mouth; or in cases of cerebral malaria as a supplementary measure to intravenous injections. Considering the enormous number of intramuscular injections that were given, it is remarkable how few and trivial the local ill-results have been; the risk of these is negligible if obvious precautions are taken to avoid sepsis and injury to nerve trunks. A certain limited degree of tissue-necrosis is probably an almost constant result, but it is exceptional for this to occasion any symptoms or signs beyond transient discomfort and a localised induration which speedily disappears and leaves no permanent disability. It was found, however, that a more serious degree of necrosis, amounting to extensive destruction of muscle tissue, may occur if repeated intramuscular injections are given to patients with seriously lowered vitality, such as those suffering from the effects of chronic dysentery; in such cases all the circumstances should receive careful consideration before the use of intramuscular quinine is decided on.

Rectal and subcutaneous quinine.—As an exceptional measure quinine was administered per rectum in doses of 5 to 10 gr., dissolved in 5 to 10 ounces of saline. This method proved of value when it was desired temporarily to supplement the amount of quinine introduced by other channels. The subcutaneous method was also employed in a small series of cases by Major E. B. Gunson, R.A.M.C., but did not appear to possess any advantage over the intramuscular method. On the other hand, the technique is less convenient and the risk of local complications is greater.

Galyl.—There was a marked divergence of opinion among clinical observers as to the value of arsenical preparations such as galyl in the treatment of malaria. At one time there seemed grounds for hope that with the introduction of galyl a preparation of remarkable value and activity had become available, but further experience was disappointing, and in the opinion of most observers the reputation of galyl as an effective agent in the control of the acuter phases of malaria was not established. But the preparation undoubtedly possesses some parasite-destroying properties, especially in subtertian malaria, and it may prove to be of value in the treatment of cerebral cases in which quinine has been pushed to the verge of tolerance and still symptoms of a heavy parasite infection remain. Apart from the question of its specific value, galyl has a definite use in stimulating the activity of the blood-forming organs, and was used with benefit in the severer grades of anæmia with cachexia and marked splenic enlargement following malaria and in convalescence from blackwater fever.

The Prevention of Relapses.

A very short experience in Macedonia was sufficient to bring home to all those concerned with the management of malarial cases the limitations of quinine treatment. Side by side with its remarkable power in controlling the acuter manifestations of the disease and its special importance in such conditions as cerebral malaria, when the life of the patient may depend on its proper use, there was accumulating evidence of its inadequacy in preventing the recurrence of relapses. Innumerable observations were made both at the base and in corps areas with the object of testing the value of quinine in relapse prophylaxis. Many of these have been published, and I wish here only to allude to the results obtained by Major A. G. Anderson, R.A.M.C., in the special malaria wards set apart for observation purposes at a base general hospital. In these wards the best results in the prevention of relapses were obtained by the so-called week-end system, in which 30 gr. of quinine were given on each of two consecutive days in each week. By this method the percentage of non-relapse cases was increased to 78 per cent., as compared with 32 per cent. in the control series, in which no quinine was given after the initial pyrexia had subsided. No inconvenient symptoms arose from the larger week-end doses in the case of patients treated in hospital, but equally good results may be obtained by the same weekly quantity of quinine distributed in daily doses of 10 gr. for six days a week, a plan of treatment which has undoubted advantages in the case of individuals who are occupied in their daily work, as has been pointed out by Sir Ronald Ross in a recent communication to THE LANCET (Jan. 3rd).

BILHARZIASIS:
ITS INCIDENCE AND ERADICATION.

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IN THE LANCET of Oct. 11th, 1919, a paper under the above heading appeared, written by (Mrs.) B. Sheldon Elgood and Major Thomas Cherry, the main points of the paper being: 1. The absence of schistosomiasis from Crete and its presence in Cyprus is due to the free flow of the mountain streams during the summer in the former and the presence of marshes and streams nearly dry in the summer in the latter. 2. The festival of Shem-en-Nesim is the occasion and cause of the infection of the population of Cairo with schistosomiasis, and accounts for the recognised age-incidence of the disease, it being known to occur with greatest frequency among children above the age of infancy and in young adults. 3. Schistosomiasis might be eradicated from Egypt were flocks of ducks kept in the infected districts and directed by the children to the portions of the canal known to harbour infected molluscs.

The first proposition is interesting, but it must be remembered that both the molluscar hosts and the cercaria of the schistosomidæ have great capabilities of adaptation, being even able to thrive in the hot springs at Gabes in Tunis, where the temperature of the water is over 40°C., and it is quite possible that it is not the disease that is wanting in Crete but its recognition. The second contention is of greater interest, and opens up a much more important question. It may very well be that many Cairene children are infected at Shem-en-Nesim, although opportunities for them to become infected at garden pools, fountains, and the Khalig are plentiful throughout the year; but one may well question whether the age-incidence is due to so simple a cause. Shem-en-Nesim is essentially an Egyptian festival, but inquiry will show that the age-incidence of schistosomiasis is world-wide. Wherever the disease is endemic in a high degree—i.e., wherever the chance of infection is constantly present at all periods of life—the greater number of cases of schistosomiasis will be found to occur in advancing childhood and early

youth, whilst mature adults are comparatively free; at the same time, the cases among the young population are mild in degree and present but simple symptoms, whilst the majority, if not all, the cases among adults are by comparison severe and show a complication of symptoms.

In running one's mind back over the many hundreds of cases seen in hospital and private practice in Egypt, one finds it hard to recall any but cases of simple hæmaturia in the young or any but severe cases of cystitis, proctitis, fistula, and so on, in mature adults. I am speaking now, of course, of native Egyptians who have passed their lives in the midst of potential infection.

That the age-incidence is the same in all parts of the world is shown by the records of Thomson[1] in the Eastern Soudan; by Conor[2] and Conor and Benazet,[3] amongst others, in Tunis; by Clapier[4] on the West Coast of Africa; by Allen[5] and Petrie[6] in Natal; by Turner[7] at the Cape and in the Transvaal; by Leger[8] in the West Indies; by Ris-quez[9] in Venezuela; by Gonzales[10] in Porto Rico; by Edgar[11] in China; and by Fujinami[12] in Japan. Spring-time festivals, such as Shem-en-Nesim, are universal, but it must need some much more profoundly acting influence than annual excursions of the townspeople into the country to bring about a condition characteristic of a particular disease throughout the world, and I think that this influence in the case of schistosomiasis is that of acquired immunity.

Evidence of Acquired Immunity in Schistosomiasis.

The only direct experiment to prove the acquisition of immunity in schistosomiasis that I am aware of was that of Fujinami,[12] when he used the horse, and when he obtained results which were more than suggestive. But, after all, experiment is hardly necessary when we clearly see the process going on in nature before our eyes.

Take the case of the Egyptian peasant, the greater part of whose life is passed in direct contact with cercaria-bearing water. He acquires the disease early in life, passes blood in his urine for so many months, or it may be for a few years, and then this ceases and he is spontaneously cured, and not only is he cured of this attack but his history will show that although he continues to expose himself to reinfection throughout the remainder of his life he never again suffers from hæmaturia or reacquires the disease. This is the history of the vast majority of the natives of Egypt, but, as we know only too well, there are cases, in great numbers, in which the disease, instead of undergoing spontaneous cure, progresses and shows signs, as it were, of malignancy, lasting for the remainder of the victim's life, and eventually, it may be, killing him.

Between these two extremes, the simple uncomplicated case of hæmaturia going on to spontaneous cure and the progressive case going on to death, there is every grade of duration and severity. These cases show that complete immunity is not acquired in every case and that there are individuals whose resistance is strong and rapidly developed and others less capable of resistance and who do not react defensively to the toxins elaborated by the parasites.

Pathologically the agglomeration of multinuclear cells, stellate cells, and eosinophiles in the bilharzial tubercles found in the liver and elsewhere wherever eggs are lodged, and the excessive formation of bilharzial granulation tissue occurring in connexion with old-standing bilharzial lesions, point to the local action of a toxin generated in the vicinity of deposited eggs. The general systemic disturbance, the fever, and the urticaria exhibited during the early weeks after infection by any of the three species of schistosomes point to the general action of a toxin produced by the parasite. The great increase of the eosinophile elements of the blood during the early months of infection probably indicate the effort of the organism to resist the action of this toxin and to produce immunity to its harmful effects.

In 1916 Fujinami[12] showed that a horse which had recovered from schistosomiasis failed to acquire the disease a second time when experimentally exposed to infection, whilst two other horses, which had never had the disease and were exposed to infection under identical conditions, both became heavily infected.

Sueyasu,[13] working on the blood of this first "immune" horse, obtained a positive complement-fixation, with both an aqueous and an alcoholic antigen.

Last year Hamilton Fairley,[14] in his own words, "adduced definite evidence of an immune body in the sera of patients affected with either the *Sch. hæmatobium* or the *Sch. mansoni* type of Egyptian bilharzia."

If immunity be acquired by an attack of schistosomiasis the disease, in a country where the disease is endemic and where the mass of the population is constantly exposed to the risk of infection, would naturally tend to become a disease of early life exactly as the ordinary zymotic diseases are in England, and as few of us escape in our early years, so do few Egyptians escape schistosomiasis during their youth.

All helminthic infections appear to give rise to some general disturbance of the system of the host, and it is highly probable or, as I venture to think, certain that each helminth produces its own toxin, which is absorbed by its host and sets in train changes which lead to immunity not only against further harmful effects of the toxin, but render the tissues of his body inimical to the parasite itself. These changes not only lead to the death of the original parasites, but prevent the development and growth of any other parasite of the same specie, the immature forms of which may have gained entrance to his body. Were this not so, the fellaheen of Egypt, who are constantly in contact with water containing *Schistosoma cercaria*, would be accumulating new schistosomes throughout their lives, and they would of necessity suffer from the effect of the infection in an increasing degree as their age increased instead of the disease being, as we know it is, one essentially of early life.

The idea of introducing flocks of ducks to eradicate bilharziasis from Egypt is ingenious, but it must be remembered that ducks themselves are liable to attack by *Bilharziella polonica*, and one wonders what would be the result if the village children, either through defective instruction or mere devilment, instead of leading their charges to the beds of *Bullinus contortus* hurried them to the haunts of *Planorbis mareoticus!*

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Coonoor, S. India.

THE ABUSE OF PASSIVE MOVEMENTS.

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THESE remarks are an attempt to accentuate certain widely enunciated principles of treatment which have long been taught by well-known experts in orthopædic surgery, but which, frequently owing to want of interest, are ignored.

It is common for a patient suffering from the results of an injury or disease which has been treated by prolonged immobilisation in splints or otherwise to be referred to a treatment department for "massage and passive movements." This phrase may be seen in the majority of recommendations for treatment brought in from their local committees by pensioners—wounded at least over a year ago—to their treatment clinics. This class of case includes, among many others, conditions such as ankyloses, fibrous and bony, following injury and infection of joint surfaces; muscle and tendon injuries with destruction and fibrous replacement of contractile material, and consequent contractures, or deep-seated matting and adhesions; chronic irritative conditions of bones, joint surfaces or nerves, with resulting reflex spasm; internal derangements of joints with muscle atrophy. In addition, there are the countless simpler injuries, of varying severity, of the bony or soft parts of a limb with accompanying stiffness of joints and restriction of their full range of mobility.

In the treatment of such conditions it is obvious that in some, for example the flaccid knee, passive movements will be useless; in fact, the ultimate aims of treatment here, after the removal of the immediate cause of the derangement, are the provision of a sufficiently active musculature surrounding the joint to control or prevent undesirable passive mobility. In other cases passive movement will be mechanically impossible.

For the relief of such incapacity as is due to actual muscle injury and fibrous replacement, the only possible hope lies in the development by continuous, unwearying encouragement and training—assisted possibly by external stimulation, such as the faradic current—of a voluntary shortening of the muscle substance remaining. This muscle must be singled out individually and "put through its paces" according to a definite scheme of work depending on its capacity. Such individual exercise is a vital introduction to the subsequent training and development of the function of the limb, in which all muscles are made to act in team according to their physiological arrangement.

Limitation of joint movements by contractures derives no benefit whatever from passive movements. In certain cases stretching a joint is of the utmost service, but this is a very far cry from moving it passively. The limb, after a preliminary course of massage, is firmly and evenly stretched, the patient the whole while being exhorted to assist in such movement to the utmost of his capacity. Following this it is replaced in an apparatus designed to exert a constant pull on the shortened structures, and not removed till the treatment is repeated.

Among the uncountable varieties of joint injuries there are of course some which are ameliorated during the course of their treatment by movement through the whole joint range once or perhaps twice. This is, however, only possible in the complete relaxation of surgical anæsthesia, and is then only to be undertaken by the surgeon as a manœuvre from which he can date the beginning of his active joint movements.

Early Voluntary Movements in Recent Infective Conditions.

These remarks, made in reference to disabilities of long duration, are equally true if applied to recent infective and traumatic conditions. It has been very forcibly pointed out by Osgood and others that even in the acute stage of pyogenic joint infections early voluntary movements (first of all simply efforts at movement) on the part of the patient by no means tend in suitably selected cases to increase the disturbance, and vastly influence the future possibilities of the function of the limb. In such conditions passive movements need not be considered.

In early traumatic lesions, when the moment for mobilisation has arrived—and this should not be delayed longer than the acute manifestations or questions of fixation render imperative—voluntary muscular contraction, accompanied by joint movement, holds its place of maximum utility. All the theoretical advantages claimed for massage are immediately and efficiently secured; dangerous areas are avoided automatically; exudates are absorbed; troublesome adhesions and dense infiltration are prevented. No doubt it may be advisable in some cases at the first visit of the patient to demonstrate passively to him the nature of the movement to be produced. This, however, is not treatment by "passive movements"; it is a method of overcoming reflex inhibition of voluntary muscular control. Joint movement can be obtained with infinitely more gratification to the patient actively than by passive treatment, and with complete safety if nature's danger signals of pain, swelling, and stiffness are watched.

Dangers of Passive Movements.

Passive movements, on the other hand, carry with them no guarantee of safety; they are often accompanied by acute uneasiness in the mind of the patient; they have little physiological value from a vascular and trophic point of view; they are often rendered quite impossible by reflex rigidity and stiffness, or if strict attention to the orders of the prescribing authority is conscientiously paid, the passive resistance of the patient is overcome and serious harm is done. In this way slumbering infection or trauma is wakened, and new complications, such as cicatricial and bony overgrowth in the neighbourhood of the lesion, are produced. Unfortunate examples of the result of "early massage and passive movements" are constantly seen in the elbows of patients with injuries to the lower extremity of the humerus. Tender, stiff, and swollen, they are subjected to continual pulling and pushing till permanent and irrevocable damage has been done to the limb; while the alternative treatment of a short, full-flexion, wrist sling, with active elbow movements following the disappearance of the acute manifestations, would have almost certainly restored to the limb in a comparatively short time a good, if not a full, measure of functional capacity.

It is not denied that, judiciously applied, passive movement is occasionally of service, but it is only so in the hands of a surgeon who, for a reason that he is prepared to define, after eliminating resistance, produces the desired movements. It is certainly not so when applied indiscriminately on all and sundry injuries to the limbs.

Summary.

It is time that the phrase "massage and passive movements," as loosely indicating a form of treatment on to which responsibility for future failure may be thrown, should disappear for ever. While of value in a few cases, not only is it useless as a routine therapeutic measure, but in many cases it does definite and positive harm. It is for these reasons that machinery of the Zander type has been excluded from up-to-date physio-therapeutic departments. Voluntary movement, on the other hand, whether reinforced externally or not, undertaken at the right moment, is a valuable method of treatment, physiologically correct, carrying with it its own guarantee of safety.

It is considerations such as these that emphasise the necessity of a single control—that of the surgeon—over the treatment of a patient, no matter whether in the out-patient department, the

ward, the massage and electrical department, or the gymnasium. The surgeon responsible for the ultimate restoration of the patient to his maximum degree of capacity should be responsible also for the treatment the patient receives in the various departments of the hospital. There is no doubt that the system of "watertight" departments with separate heads is to be held to blame for a certain degree of permanent disability following injuries.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF SURGERY: SUBSECTION OF PROCTOLOGY.

RESUMED DISCUSSION ON DIVERTICULITIS.

A MEETING of this section of the Royal Society of Medicine was held on Jan. 14th, Mr. J. P. LOCKHART-MUMMERY, the President, being in the chair, when the adjourned discussion on Diverticulitis was resumed.

The PRESIDENT said that diverticulitis was an important clinical condition, and was not so rare as was at first supposed. Its greatest importance lay in the fact that it was easily and frequently confused with cancer of the sigmoid or rectum, and was nearly always mistaken for inoperable cancer because the tumour was large and fixed by adhesions. Unless complete obstruction was present, therefore, the patient might be left until serious septic conditions had arisen and it was too late to benefit him by operation. Diverticulitis might be diagnosed from cancer by (1) the occurrence of acute inflammatory attacks, with high temperature and rigors; (2) the absence of blood in the stools; (3) the absence of secondary deposits after some long period. Perforation of the bladder had occurred in 4 of his 24 cases, accompanied by acute cystitis and rigors, flatus and fæces being passed per urethram. He had never seen actual perforation of the bladder from cancer of the intestine. In his series there were two cases of secondary carcinoma supervening upon an old diverticulitis, no evidence of malignancy being present at the time of operation. He attributed the malignancy to the irritation of the chronic sepsis which existed in and around the diverticula, and, bearing this possible danger in mind, if septic symptoms were present colostomy should be performed as soon as possible. From a study of Mr. Grey Turner's specimen he thought it possible that the diverticula had developed above the growth as the result of the stricture caused by the growth, so that diverticulitis might occur secondarily to carcinoma of the bowel, as well as the reverse. With regard to treatment, he strongly urged that the operation of choice in diverticulitis was colostomy above the obstruction, or short-circuiting it, and that only in exceptional circumstances should an attempt be made to do primary resection of these highly septic tumours. The results of colostomy were very satisfactory. If the disease had not progressed too far it became completely arrested after colostomy, and the patient regained normal health.

Mr. W. ERNEST MILES said that it was not easy to determine whether diverticulitis was a new form of disease due to modern modes of life or one which had existed throughout the ages. He did not think the condition was congenital. A more likely cause was increased intra-colonic pressure, the diverticula being hernial extrusions of the mucosa through the muscular coats of the bowel at the weak points created by the passage of blood-vessels. Anything, therefore, which increased intra-colonic pressure was a possible ætiological factor. In every-day life intra-colonic pressure might be increased in three ways. (1) Forcibly resisting the desire to evacuate the bowels. (2) Straining at stool, such as when a formed motion is passed through a narrowed anal orifice, as occurs from stricture of the rectum or from a deposit of fibrous tissue in the submucosa of the pecten, as described by the speaker in an article entitled "Observations upon Internal Piles."[1] The presence of the pecten band is shown by difficulty in emptying the rectum during defæcation, and by the diminished calibre of the fæces passed. (3) The habitual use of copious enemata.

Dr. A. C. JORDAN showed a number of X ray photographs. He considered that colitis was the cause of diverticulitis. The catarrhal state of the mucous membrane induced tight haustral constriction of the bowel, with exaggerated sacculation between the haustra. After some years this condition became permanent, the haustra never relaxing and the lumen of the bowel never opening up fully. Small-celled infiltration then occurred, which led to the formation of a tumour. The saccules must then lose their muscular coat, for: (1) the whole bowel is fatty and sodden; (2) the circular muscle, being in a state of spasm, cannot remain on the sides of the saccules, but must become retracted down to the bowel wall at the base of the saccules; and (3) the muscle layer over the distal end of the saccule is attenuated by pressure from within the bowel, and must be absorbed gradually, leaving perhaps a vestige, such as had been described by more than one speaker. The catarrh itself was due primarily to stasis in the large intestine, secondarily to microbic infection. Other pressure sacs, comparable in origin with those of the large intestine, occurred in the œsophagus: (*a*) at the upper end—the pharyngeal pouch—and (*b*) just below the bifurcation of the trachea—the digital pouch. In the bladder also, when there was a urethral stricture in stout elderly men, multiple diverticula occurred with small orifices protruding through the muscular coat. Such cases were described by Sir Arbuthnot Lane in 1884, and published by him in Guy's Hospital Reports for 1886.

Dr. F. HERNAMAN-JOHNSON laid stress on the presence of small round barium masses in clusters after evacuation of the meal or enema as a whole as the most satisfactory radiological evidence of the existence of permanent diverticula. The appearance was characteristic, and never, so far as he knew, mimicked by spasm or chance residues. Should diverticulitis be suspected, but not revealed by a meal, the administration of belladonna to the limit of tolerance for 36 hours, followed by thorough cleansing of the lower bowel by oil enemas, greatly increased the chance of demonstration by a barium clyster. In fact, the same care should be taken to secure patency of the diverticula as is done in the case of the appendix when it is desired to show it by X rays. The administration of belladonna had also the advantage of relieving many forms of spasm which might otherwise lead to a suspicion of organic stricture.

Perforating Diverticulitis of the Iliac Colon.

Mr. L. E. C. NORBURY described a case of Perforating Diverticulitis of the Iliac Colon in a woman aged 43. There was a history of constipation for 15 years, an attack of diarrhœa 11 years previously lasting one month, and severe griping pains for six months. On examination a swelling was detected in the left iliac region; it proved to be an adherent mass connected with the iliac colon and closely simulated carcinoma. The affected portion of the intestine, some 5 or 6 in. in length, was removed. The ends were closed and a lateral anastomosis made. The result was successful. When the specimen was examined it was found that the gut was much contracted; its walls were greatly hypertrophied and contained fatty tissue in abundance. At one place there was an irregular cavity in the fat communicating with the lumen of the gut and due to perforating diverticulitis. When first examined the cavity contained pus and pellets of inspissated fæcal matter. Microscopically there were all the signs of acute and chronic inflammation, but no evidence of malignant disease. Mr. Norbury considered enterospasm a predisposing cause of diverticulitis by producing hypertrophy of all the coats of the bowel. Constipation followed and the bowel wall became weakened at certain points owing to excessive pressure and infection. In such cases the diverticula would be pressure diverticula. The diverticula might be multiple or simple. A section

[1] Surgery, Gynecology, and Obstetrics, November, 1919.

through the wall showed a well-marked muscularis mucosæ and mucous membrane with Lieberkuhn's glands. The wall might give way with resulting infection of the surrounding fat, which was usually superabundant. Sigmoidoscopy might be of value in certain cases. The lumen of the bowel, in this condition, was very much narrowed. He had seen some cases in which the pelvic colon narrowed as the result of spasm and hypertrophy, and it was in such cases that diverticula might be expected to be present.

Sir CHARTERS SYMONDS asked what symptoms, if any, indicated the various stages in the process of communication with the bladder. What would lead one to suspect that communication between a diverticulum and the bladder was a possibility or was imminent? He had seen patients who suffered from pain when the bladder was full, the pain being completely relieved when the bladder was emptied. In these cases pain was also associated with the act of defæcation.

The PRESIDENT said that when a communication occurred between a diverticulum and the bladder the symptoms came on suddenly and unexpectedly.

Reply on the Discussion.

Dr. MAXWELL TELLING, in his reply, said that the name "sacculitis" was likely to cause confusion between the condition under discussion and sacculation of the colon. The name "diverticulitis" had passed into current use and now served to differentiate the condition from sacculitis. He thought that after middle life diverticulitis would be found to be of considerable frequency. Only a small proportion caused symptoms or gave rise to trouble. A distinction should be drawn between diverticula and diverticulitis. No operation was necessary unless clinical symptoms occurred. Much more work needed to be done before we could rely on X ray findings. The appearance was deceptive in some cases, and we should be careful not to apply the term diverticulitis to a condition of dilatation of the colon in spasm. The relationship of the condition to malignant disease was twofold. In some cases carcinoma developed after diverticulitis, whilst in others diverticula formed round the constriction of carcinoma.

Exhibition of Illustrative Specimens.

A number of illustrative specimens were on view, among which were the following:—

Mr. W. SAMPSON HANDLEY exhibited a specimen of Diverticulitis of the Small Intestine produced by traction, after adhesion of the intestine to a tuberculous retro-peritoneal gland. The gland was dragged from its bed, and had formed a band strangulating an adjoining coil, and causing acute obstruction. The patient, a boy aged 6, recovered.

Mr. C. A. R. NITCH exhibited part of a Pelvic Colon which was excised for the results of perforating diverticulitis. The patient, a woman aged 49, had suffered from constipation for many years. In November, 1919, she had an attack of colicky pain in the lower part of the abdomen, accompanied by constipation and tenesmus. A fortnight later she had a similar attack, with slight rise of temperature, and passed some blood and mucus. On examination an oval mobile tumour was felt just below the brim of the pelvis on the left side. At the operation the tumour, thought to be carcinoma, was resected, and the continuity of the bowel restored by axial anastomosis. The patient made an uneventful recovery. Examination of the specimen revealed the presence of three diverticula, one of which opened into an irregular cavity of necrotic and suppurating pericolic fat. Microscopic examination showed that the fat around the necrotic area was thickly infiltrated with polymorphs and was hyperæmic.

Dr. F. HERNAMAN-JOHNSON exhibited X ray Photographs of a case of Diverticulitis in a woman aged 60. The plates showed: (*a*) by opaque meal, a few rounded shadows external to the main mass of the meal in the sigmoid; (*b*) by opaque enema in situ, very similar appearances; (*c*) after evacuation of the enema, numerous round discrete shadows remaining in the region of the sigmoid. It was the last appearance which led to his regarding the case as one of diverticulitis, and this was confirmed at operation.

SECTION OF PSYCHIATRY.

THE NATURE OF EPILEPSY.

A MEETING of this section of the Royal Society of Medicine was held on Jan. 13th. In the absence of the President and Vice-Presidents, the chair was taken by Dr. PERCY SMITH. On the conclusion of formal business the CHAIRMAN called upon Dr. E. W. SCRIPTURE to read a paper on the Nature of Epilepsy.

Melody Curves.

This paper was in reality a description of a particular method of investigation and its relation to a particular theory of the ætiology of epilepsy. Dr. Scripture first demonstrated with the aid of the epidiascope his apparatus for recording on a smoked drum the variations of pitch in the melody of normal human utterance. He explained that in addition to the normal variations of pitch there were also minute variations which the naked eye was not capable of recognising, but which were revealed by magnification. These finer undulations, measured vertically from crest to trough, showed a variation of frequency of from 100 to 130 per second. The trained ear was able to detect the absence of these secondary undulations, so that Dr. Scripture found himself able to recognise an epileptic subject—in which these secondary variations are absent—simply by listening to the sound of the patient's voice.

Pierce-Clark's Theory of Epilepsy.

He had for several years been unable to account for this inflexibility of the epileptic voice, until he read a theory of the psychogenesis of epilepsy advanced by his old colleague, Dr. Pierce-Clark. This theory states: (1) That the epileptic subject is a combination of the hypersensitive and of the egocentric, which results in a being ill-adapted to the normal environment of man; (2) that he is at the same time stubbornly determined that his environment shall be made to conform to himself; and (3) that the continued strain resulting from his inability to conform to environment is the root cause of his epilepsy. Freedom from conflict is found in unconsciousness.

Dr. Scripture, in supporting this theory, did not hesitate to put forward the life-history of an egocentric dog as an evidence of its probability. The dog's epilepsy only appeared when it was prevented from indulging its every whim. Now the melodious voice is used by that man who is anxious to please. Was it not natural to suppose, therefore, that the unmelodious wooden voice of the epileptic was symptomatic of his essential egocentricity?

Discussion.

Sir ROBERT ARMSTRONG-JONES could not find any reason for giving credence to the Pierce-Clark theory of the origin of epilepsy. So many found it difficult to conform to their environment who were yet not epileptic. On the other hand, he thought that Dr. Scripture's apparatus might prove very valuable as an instrument of special diagnosis if it could be shown that certain distinct varieties of melody curve were characteristic of different diseases.

Dr. BERNARD HART asked whether such special curves had been shown to exist. He also inquired whether the wooden tone of the stutterer was attributed by Dr. Scripture to the same psychological cause—i.e., egocentricity—as in the case of the epileptic.

Dr. HELEN BOYLE was anxious to know whether the cases investigated by Dr. Scripture were being treated with bromides. She believed there were three or four varieties of epilepsy, some curable, some incurable, and some curable under certain conditions and not under others.

Dr. SCRIPTURE, in reply, said that it was only those who were uncompromising in their resistance to adaptation who became epileptic. He had found curves characteristic of general paralysis, and was still working upon the curves in dementia præcox. The monotony in stuttering was due to an absence of all voice modulation. In epilepsy the voice is modulated, but the finer variations in frequency are absent. The cases upon which his investigations were carried out had been carefully selected from among patients who had not been treated

with bromides. He agreed that there were different varieties of epilepsy.

THE ENDOCRINE GLANDS AND MENTAL DISORDER.

Dr. H. CRICHTON MILLER read a paper on the Rôle of the Endocrine Glands in Mental Disorder. He gave a broad survey of his subject, and dealt with an amazing volume of literature that has been written on the subject. The close inter-relation of psychic and somatic (endocrine) factors in the production of mental disease was illustrated (among other ways) by a discussion of obsessional hypertrichosis. The overgrowth of hair was clearly due to physical changes, but the effect of the realisation of this overgrowth on the mind of the patient clearly resulted in psychic strain. Hypothyroidism influenced the creative even more than the reproductive faculties. Who has ever conceived of a myxœdematous artist? He expressed himself as a firm believer in the psychogenesis of maniac-depressive insanity, yet the regular periodicity evidenced in the phases of this disease must be due to physiological fluctuations. There was here, again, a psycho-physical interaction. Discussing the present empirical methods of treatment with extracts from the ductless glands, Dr. Miller remarked that we stand at the present time between a moderately successful endocrine therapy on the one hand and a vast quantity of uncorrelated laboratory experience on the other. Endocrine disorders might be forestalled (*a*) by early psychopathic treatment, (*b*) by early treatment of septic conditions. At present we attempted neither method. We must learn therefore to repair the damage wrought by the resulting disharmony of the endocrine secretions. This link in the chain of disease was capable of approach both from the mental and physical side. Dr. Miller discussed in detail five possible relationships between the psychic and endocrine systems. As an example of how both psychic and endocrine influences might combine to upset mental equilibrium, he cited the case of a girl patient which had come under his notice. In the space of four months she had been treated successfully by no less than three mental specialists—a psycho-analyst, a believer in suggestion, and, finally, one who believed in the power of his own personality to set the patient straight. At the end of that time she was in so serious a condition that it seemed almost necessary to sign a certificate. Certainly there were psychic factors involved. Her fiancé was a man who had been jilted by her sister, the pleasure she took in being petted at home also made the idea of marriage distasteful to her. But where psycho-therapy had failed a course of treatment with thyroid extract proved successful. The increase in sexual desire resulting from this treatment proved a natural solution of the mental conflict. She was happily married and completely cured.

Discussion on Dr. Miller's Paper.

The CHAIRMAN remarked on the difficulty of following so intricate a subject without having first been able to read a digest of the paper. Dr. Miller appeared to have transferred the conflict into the endocrine system.

Dr. LEONARD WILLIAMS agreed with such parts of Dr. Miller's paper as he felt it within his capacity to criticise. He cited a case of thyroidectomy in which the patient had been unable to take the form of thyroid extract offered her after the operation. Nor were grafts of the gland introduced into the abdomen any more successful. A certain liquid preparation was at last found to be satisfactory in every respect except one. The patient, either in hot summer weather or when seated before a large fire, was subject to a severe sense of chilliness. This was overcome by adding extract of parathyroid to her medicine.

Dr. HARRY CAMPBELL also expressed agreement with the paper. It was one of his aphorisms that the temperament of man, be he pleasant or surly, was due to the composition of his blood. This was true of the congenital psychasthenic and neurasthenic, and the psycho-analysts would eventually find themselves up against this fact. They might solve temporary difficulties by analysis, but they could not change a temperament which had its origin in the chemical constituents which make up the plasma.

Dr. MILLER, in reply, feared that he had not made his thesis clear. He did not really transfer the conflict to the endocrine system. He wished the interaction of the two systems upon each other to be recognised. Dr. Campbell had quoted two examples to show the pre-eminence of the internal secretions. With one of these, the periodical coming into rut of the stag, Dr. Miller agreed—the very periodicity was evidence of a physiological basis. The other example was of the apparent rejuvenation of an aged arthritic dog when living in contact with a bitch during the period of "heat." But this case surely was an example of physical change wrought by psychic stimulation, though the psychic stimulation might very probably be aroused in the first case by an impulse travelling along the olfactory nerves.

TUBERCULOSIS SOCIETY.

RESUMED DISCUSSION ON TUBERCULOSIS IN RELATION TO SCHOOL LIFE.

THE second joint meeting of the society with the Society of School Medical Officers took place on Jan. 12th, with Dr. JAMES KERR in the chair, when the discussion upon "The Various Aspects of Tuberculosis in Relation to School Life" was resumed.

Dr. F. W. HIGGS said that the subject must be viewed from both the clinical, pathological, and from the administrative aspects, and was full of possibilities of research. The presence of an active granuloma in the body was bound to produce symptoms even though diagnostic signs were absent, and every child who did not get on should be suspected of an active focus. These children should be weighed every month until there had been a steady increase for some time. They should be kept under observation by the school medical officer, and doubtful cases referred to the tuberculosis officer. He thought that these officers, if they had not already acquired it, should be given time to increase their knowledge of the subject by the local body which employed them. Radiologists until they became expert were apt, in his opinion, to diagnose tubercle in every case. The following measures were essential to reduce the disease: refusal of admission of tuberculous aliens into the country; isolation of open cases; dustless streets and houses; clean milk; every school an open-air school; education.

Dr. JANE WALKER objected to the stigma which was inevitably placed upon children by the necessity of notification before institutional treatment could be provided. This proved a great handicap to the child in later life and we should be careful before we damned them by this statement. She did not agree with many authorities who stated that once tubercle bacilli had been found in the sputum the cases could not be cured; her experience had been more hopeful. She did not think that household work was an unsuitable occupation for an ex-patient, if the hours were moderate and the meals regular and good. She had been in the habit of employing ex-patients from her sanatorium at Nayland and in one case this had evoked hostile criticism from the London County Council. She kept children as long as possible in sanatorium because if they returned home their education was entirely neglected. Tuberculous children were above the mental average—quick, clever, shallow, and sharp as a needle; they soon became educationally normal under tuition. She thought that continuation residential schools would be necessary when the new Education Act came into force.

Dr. MARCUS S. PATERSON was glad to see the union of the two societies over such an important subject, as it was evidence of team work, which in tuberculosis was so essential. He thought that the word "fresh-air" should be substituted for "open-air" in speaking of schools.

Dr. JAMES WATT said that tubercle in childhood was without doubt the forerunner of tubercle in the adult. Cases should, therefore, be recognised in childhood, which later might become adult cases, and they

should be kept under supervision by the various officers of the public health services. There were two methods of doing this—to examine the whole population at intervals, and to pick out all delicate children at school and follow them up. He did not recognise a subtuberculous stage; either the disease was or was not present. He urged the noting of observations in daily routine, so that definite research resulted.

Mr. F. J. C. BLACKMORE said that it was impossible for efficient work to be done with the present staff at the dispensaries, who could not cope with the numbers. The Welsh National Memorial officers had recently discussed the subject and resolved that eight new cases and 24 old cases were as much as any one man could do at one sitting.

Dr. D. J. WILLIAMSON thought that the school medical officer was under extreme difficulties in diagnosing tubercle owing to the noise and the short time allowed for each examination. He did not treat cases at the dispensary until the diagnosis was confirmed.

Dr. A. D. REID considered X ray a very valuable aid to diagnosis. Every child, however, which showed shadows in the chest was not a case for sanatorium. X rays must be taken in conjunction with symptoms and was then a great adjunct.

Dr. F. C. SHRUBSALL said that education and food were the two most important factors—education, because upon it the later earning capacity of a good living wage entirely depended.

Dr. KERR said that his ideas had been considerably modified by the discussion. Standards of efficiency now seemed doubly essential, and more attention should be paid to the pure-air campaign in schools.

The following resolution was passed:—

That it be referred to the Councils of the two societies to appoint a joint committee to consider the whole subject and to report to the two societies.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—At a clinical meeting of this society, held on Jan. 9th, with Mr. Herbert Chambers, the President, in the chair, Dr. A. C. Warren showed for Dr. F. S. Palmer a case of General Paralysis which had been trephined and for which salvarsanised serum had been injected into the ventricles of the brain. The patient, a man of 57, had had five intracranial injections into the lateral ventricles by Sir Charles Ballance at the West End Hospital for Nervous Diseases. He had also four intrathecal injections of the same serum, with the result that the cell count in the spinal fluid had been very much reduced, and the mental and physical condition of the man had considerably improved. Before treatment he had cerebral and other symptoms. His memory was impaired, he was violent at times, and had great difficulty with his speech. He required assistance in walking, tremor was very marked, the pupils were unequal and failed to react to light, and the Wassermann reaction was positive. The man had shell shock during the Battle of Jutland, May 31st, 1916, and was invalided from the navy in November, 1917. He married in February, 1918, but his wife had no children and no miscarriages. In the subsequent discussion Sir Robert Armstrong-Jones did not agree that there had been any improvement in this particular case, and said that the case presented every evidence of rapid deterioration, and went far to confirm his experience. He had personal knowledge of over 330 cases of general paralysis at Claybury, and the average duration was one year and four months from the date of admission, and possibly the symptoms had been coming on for a month or two, perhaps longer, before admission. He had also personal knowledge of six cases, similar to the one shown, treated by direct intracranial injections, five had already died, and the sixth was regressing. He did not think that surgical treatment of this kind was going to cure or even relieve confirmed cases of cortical parenchymatous spirochætosis; the neuronic damage had already been done and was irreparable. He agreed that there was a great difference in the treatment of syphilitic disease of the cerebral arteries and the meninges with inflammatory symptoms and the presence of polymorphonuclear leucocytes and the treatment of parenchymatous syphilis with the presence of lymphocytes. Sir Robert Armstrong-Jones referred to cerebral seizures of a temporary character as occasionally the first symptoms of general paralysis, and in these cases he had sometimes found ergot useful. He had also seen marked improvement in two cases by thorium hydroxide, although symptoms of general paralysis might remit for long periods without any treatment except rest.—Dr. J. F. Halls Dally drew attention to the importance of complete examination of the cerebro-spinal fluid. If the Wassermann only is done the result might be negative, and therefore extremely misleading, whereas examination of the cerebro-spinal fluid was likely not only to give positive evidence, but also to afford an indication as to the activity of the syphilitic process at the time of examination.—The case was further discussed by the President, Lieutenant-Colonel E. M. Wilson, Dr. Arthur Saunders, Dr. J. Burnford, Mr. Rickard Lloyd, and Dr. Stanley Wyard.—Dr. A. C. Warren also showed for Dr. Palmer a case of Disseminated Sclerosis in a man, aged 23, and Dr. Burnford showed cases of (1) Syphilitic Meningitis; and (2) Exophthalmos in a boy of 16.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—At a combined meeting of this society with the Nottingham Division of the British Medical Association, held on Jan. 7th a lecture on Modern Methods of Treatment in Functional Nervous Disorders was given by Dr. Bernard Hart. The lecturer began by pointing out that the term "functional nervous disease," under which were grouped hysteria, neurasthenia, and various allied conditions, including the great majority of the disorders to which the name "shell shock" was applied during the war, was rapidly becoming obsolete, and was being replaced by another term, "psychoneurosis." Behind this change in nomenclature there lay a revolution in our conception of the nature of these disorders, and of the treatment applicable to them. This revolution consisted in the advent of the psychogenic theory, which maintained that the so-called functional nervous diseases were due predominantly to causes of a psychological order, and that their treatment must therefore be carried out, in great part at least, by psychological methods. The lecturer outlined the historical development of the psychogenic theory which had taken place since the time of Charcot and the numerous apparently divergent schools and methods of psychotherapy which had thus arisen. These divergences were so obvious that it was easy to overlook the fact that all the methods were built upon a common basis. This common basis consisted in the psychogenic theory, and if its broad principles were kept constantly in view the relative merits of the various methods could be estimated and their applicability and promise of success determined in each individual case. It was clearly necessary, firstly, to determine what psychological factors were playing a part in the causation of the condition in question, and, secondly, to employ methods of treatment which would remove these factors or so modify them that the disorder was no longer produced. These two processes could be termed "analysis" and "rectification." Analysis involved a knowledge of the motive forces of the mind and their mode of action, a knowledge of psychology and psycho-pathology, so that the nature of the causal factors could be deduced from the symptoms present. Rectification included suggestion, persuasion, re-education, and the employment of all the emotional or instinctive forces which could be called to our aid to modify the mental processes of the patient in the desired direction. Dr. Hart illustrated the application of these principles to various types of psycho-neurosis, selecting a series of cases of increasing complexity, and including such conditions as functional dyspepsia, hysterical paralyses and mutism, and the so-called "anxiety neuroses." In conclusion, he pointed out that, although in the course of the lecture he had emphasised the psychological factors and their treatment, because the recognition of their importance constituted the fundamental feature of modern conceptions, yet it was urgently necessary to take account of the physical factors which also played a part in the psycho-neuroses, and to deal with them by suitable methods.

THE ASSURANCE MEDICAL SOCIETY.—At a special meeting of this society, held on Jan. 7th, it was resolved, by a large majority, that the society should remain, as hitherto, a separate and independent one. Accordingly no further steps will be taken with regard to the suggested incorporation with the Royal Society of Medicine.

MANCHESTER ROYAL INFIRMARY.—The second series of the Ellis Llwyd Jones post-graduate demonstrations on Diseases of the Ear will be given at the Manchester Royal Infirmary on Fridays at 4.30 P.M. this session, starting on Jan. 30th. These lectures were founded by Sir James E. Jones, of Rochdale, and three courses of ten practical demonstrations, at which the number of post-graduates attending is limited to 12, are given every year by a member of the aural staff of the infirmary. The first course was given by Sir William Milligan and the present series will be given by Mr. Lindley Sewell, assistant surgical officer to the aural department. Further information may be obtained on application to the general superintendent and secretary, Manchester Royal Infirmary.

Reviews and Notices of Books.

VENEREAL DISEASE: ITS PREVENTION, SYMPTOMS, AND TREATMENT.

By HUGH WANSEY BAYLY, *M.C.* London: J. and A. Churchill. 1919. Pp. 152. 10*s.* 6*d.*

IT is natural that in correlation with the great attention directed to venereal disease within the last few years there should be a large output of manuals treating of this branch of medicine. The time has now come when any addition to the number of works already published on the subject must be justified by some strong claim to originality. Mr. Wansey Bayly's book satisfies this condition. The author brings out in a style which is all his own the importance which attaches to the measures for dealing with venereal diseases from a sociological point of view. If it has no other result, his useful manual will bring home to medical men the great influence which it is in their power to exert in other ways than by the actual treatment of disease. The public at large looks to the medical profession for guidance on the manifold sociological problems associated with venereal disease. It is the plain duty of every practitioner to acquaint himself with the fundamental factors involved in those problems. Mr. Bayly offers to be his guide.

In the clinical portion of his work we think that the author would have been of greater service to the general practitioner had he dealt with his subject-matter in greater fullness. In the section on syphilis we miss any reference to the differential diagnosis of the primary chancre and the various kinds of rash. There is a slip on p. 18, where it is implied that the inguinal glands drain the testicles. We also regret the omission of instruction in the intravenous administration of arsenical preparations by the gravity method. We consider it can hardly be wise to encourage the practitioner to use the syringe until he has had very considerable experience under supervision, which should include an apprenticeship to the administration of dilute solutions by gravity. The account of gonorrhœa would be easier to follow and more helpful to the reader had the author devoted separate sections to the discussion of the disease in male and female. More space might well have been given to the subject of gonorrhœa in women. Nor can the account of the treatment of strictures be regarded as anything but scanty quantitatively and qualitatively.

But having said this by way of suggestion for emendation in future editions, we are confident that the book as it stands will prove both stimulating and useful to practitioners. The student will welcome the book as a crisp and well-arranged summary from which a concise knowledge may be gained of a subject which is not a compulsory part of the medical curriculum. The bold black-and-white sketches are, with the exception of Fig. 1, distinctly elucidatory.

CEREBRO-SPINAL FLUID IN HEALTH AND IN DISEASE.

By ABRAHAM LEVINSON, B.S., M.D., Associate in Pediatrics, Northwestern University Medical School, Chicago, &c. London: Henry Kimpton. 1919. With 56 illustrations, including five colour plates. Pp. 232. 16*s.*

DIE LUMBALPUNKTION.

By Dr. KARL ESKUCHEN, München-Schwabing. Berlin: Urban and Schwarzenberg. 1919. With 21 illustrations and 2 coloured plates. Pp. 188. M. 8.

Dr. Levinson's monograph constitutes a useful and practical compendium of knowledge in all that pertains to the cerebro-spinal fluid. Its subject-matter deals with the anatomy and physiology of normal fluid, its physical, physicochemical, and biochemical properties, with the changes that take place in it in disease, methods of examination, modifications in specific diseases, and intraspinal treatment of various kinds. The book is well illustrated and printed. Its chief merit is the evidence it reveals of first-hand practical knowledge on the part of the author, as anyone familiar with the subject soon gathers. Perhaps one of its defects is the too succinct description of the cytology; plasma cells, e.g., are not mentioned apparently, nor macrophages (Gitterzellen). A compendium of this sort will be very valuable both to the worker in the clinical laboratory and to the physician interested in the scientific side of medicine.

Dr. Eskuchen's treatise on the cerebro-spinal fluid well illustrates the immense advances in knowledge since the days of Quincke, some 180 closely printed pages being packed full of information. Special attention may be directed to the excellent summary of the fluid findings in individual nervous and other diseases, to which some 45 pages are devoted. Valuable as this summary is, it is incomplete without a reference to encephalitis lethargica. The Lange gold reaction receives that full notice which its increasing importance in neurology demands. One of the most interesting sections is on the fluid content in tumour cases and on the differential diagnosis of spinal from intracranial tumours by fluid tests. This monograph can be confidently recommended to all who would keep themselves abreast of the subject.

THE END OF A DREAM.

By A. M. N. JENKIN. London: John Lane. 1919. Pp. 292. 7*s.*

THE novel of "shell shock" was bound to come. Shell shock is too convenient a cliché to be overlooked, devoid though it is of any specific meaning. The author of "The End of a Dream," not content with having his shell-shocked hero commit double murder and suicide, piles Pelion on Ossa by making him a morphinist also. It is regrettable that a whole series of horrors should be attributed to shell shock so-called. If the author knows so much he should in fairness have gone further, and explained to his readers that shell shock itself in no way accounts for the unconscious trends and impulses of the potential criminal. In so far as the book may realise his hope of constituting a plea for sympathetic consideration of the mental wounds of war it may possibly justify its publication.

JOURNALS.

Journal of Hygiene. Vol. XVIII., No. 3, October, 1919.—This number contains articles dealing with a wide range of subjects, as the following brief abstracts indicate. J. Burton Cleland and Burton Bradley, Experiments in the Etiology of Dengue Fever. With clinical notes by W. MacDonald. In continuation of work on this subject the authors find that dengue fever may be transmitted to a healthy non-immune man by the injection of blood taken from a patient on the second or third day of the disease. The incubation period of "artificial" dengue fever is from six to nine days. The virus is not kept back by a Pasteur-Chamberland F filter, and "is resistant to conditions outside the body for several days." Four "generations" of artificial cases of the disease have been obtained, failure to obtain more being due to lack of volunteers. Dengue fever is transmitted naturally in Australia by the yellow fever mosquito, *Stegomyia fasciata*. It has not been possible to transmit the disease to guinea-pigs or rabbits.—Two instances of Human Sera showing Abnormal Anti-Complementary Power, by E. L. Kennaway and Captain A. M. Wright. This condition is of practical importance, since it might lead to errors of diagnosis by the Wassermann reaction. In the cases described the amount of complement fixed by the serum in one case was about six times the normal and in the second four times.—Captain J. W. McLeod, R.A.M.C., gives an account of his experience in the use of brilliant green in the isolation of typhoid and paratyphoid bacilli from stools. His conclusions are favourable to the method. —In a paper on the Bacterial Content of the Air in Army Sleeping Huts A. J. Eagleton shows that in the ordinary infantry sleeping hut there is a stagnant well of infected air extending up to eight feet from the ground level, in which the men sleep. It is proved how readily the meningococcus can spread from a

carrier to a susceptible man. The practical conclusion is that better, and preferably ground, ventilation is needed.—An Experimental Investigation of an Australian Epidemic of Acute Encephalo-Myelitis, by J. Burton Cleland and A. W. Campbell. This is an investigation of an epidemic disease which was prevalent in New South Wales in the late summer of the years 1917 and 1918. It was very fatal (94 deaths out of 134 cases), and was confined to districts remote from one another and from Sydney. The disease is communicable to the monkey, the sheep, horse, and calf. Clinical features included convulsions, rigidity, increased reflex activity, mental confusion, and pyrexia; paralysis seldom occurred. The virus was not obtained.—On the Effects of Injections of Quinine into the Tissues of Man and Animals, by L. S. Dudgeon. A concentrated solution of quinine is rapidly absorbed from the tissues. The lesions caused by such solutions are described and figured.—Studies on the Action of Electrolytes on Bacteria, by C. Shearer.

British Journal of Ophthalmology. May–December, 1919.—In the May and June numbers two interesting papers appear bearing on the functions of the pituitary body. They were both read before the Ophthalmological Section of the Royal Society of Medicine.——In the May number James Taylor publishes skiagrams showing enlargement of the sella turcica in two cases of Leber's optic atrophy, supporting a theory of the disease which had previously been propounded by Herbert Fisher.——In the June number Herbert Fisher himself puts forward a theory of migraine, namely, that it is the result of a temporary swelling accompanying overactivity of the pituitary body. In such a case no bone changes are to be expected.——In the July number Priestley Smith discusses tenometric values in relation to the Schiotz and McClean tonometers, Ernest Thomson contributes some statistics of myopia in school children, and H. R. Jeremy records an interesting case of cataract following thyroidectomy. No previous case of the sort has made appearance in the English literature, although two cases have been described in Germany, and an experimental case of the sort in a dog was recorded by Walter Edmunds in 1916.——In the August number Charles Maghy sets out a case of Bilaterial Glioma of the Retina, from the Moorfields laboratory, in which the second eye was excised at the age of 20, 18 years after excision of the first eye.—In the August and September numbers there is a survey of 1201 cases of concomitant squint occurring in the practice of the late Mr. P. W. Maxwell, of Dublin.—In the same numbers a somewhat abstruse paper, by E. M. Eaton, appears, read before the Royal Society of Medicine, on the Visual Perception of Solid Form. The theory of corresponding points on the two retinæ to explain binocular vision is tried and found wanting. The alternative explanation favoured is a psychic rather than a physiological one. "The perceptive axis of vision lies between the fixation point and the middle of the interocular space. Its use involves a psychic modification of all visual angles similar to that which enables us to interpret foreshortened images in accordance with their true values. The perception of position in three dimensions is a function of the sense of directional projection of the two eyes." "The binocular element in vision contributes a valuable quota to stereoscopic perception, but it is one of many factors. The relative part of each factor varies with the type of view, and no individual factor is universally essential." The sentences quoted represent the most striking conclusions. The arguments by which they are supported must be studied in the original paper.——In the October number J. Gray Clegg discusses the notation of the axes of cylinders and the various systems in use in this and other countries, in the hope that uniformity in this matter may be attained.—In the same number J. A. Wilson give details of five cases of gunshot injuries of the cortical visual areas.——November: A. F. MacCallan: Causes of Non-trachomatous Ophthalmia in Egypt. For some years this observer has been publishing papers displaying the connexion between the rise of temperature in the summer months and the incidence of different forms of conjunctival infection. There always is a very marked increase of cases during the summer months, in which increase the gonococcus plays the chief part. Taking the gonococcal cases by themselves, their increase is found to follow the spring rise in temperature, not reaching the maximum until October. Conjunctivitis due to the Weeks bacillus, on the other hand, shows its maximum incidence in the months of April and May. Conjunctivitis due to the Morax bacillus is comparatively evenly distributed through the year.—Sydney Stephenson: Eye Symptoms as the Only Indication of Fractured Base of the Skull. Cases in point are detailed showing one or more of the following symptoms: subconjunctival ecchymosis, retinal hæmorrhages, paresis of one external rectus, and optic atrophy.——December: G. M. van Duyse, jun., from the Ophthalmological Laboratory of Ghent, contributes a paper on the pathology of colobomatous and microphthalmic eyes.—A. S. Percival relates two cases of diplopia after violence which he diagnosed as injury to the trochlea of the superior oblique muscle. The report is given in full of the Council of British Ophthalmologists on the desirability of a special qualification in ophthalmology.

Quarterly Journal of Microscopical Science. Edited by Sir E. RAY LANKESTER, with the coöperation of Professors HICKSON, BOURNE, GRAHAM-KERR, and MACBRIDE. Vol. LXIII., Part 4, and Vol. LXIV., Part 1. London: J. and A. Churchill. 1919. 10*s.* 6*d.* per part.—*Journal of the Royal Microscopical Society.* Edited by C. SINGER, assisted by Professor THOMSON, Messrs. DISNEY, RENDLE, and BROOKS. 1919. Part 1. 10*s.*—These two numbers of the *Quarterly Journal* contain between them 13 communications upon very various zoological matters, including technique, and one review; of these only a few can be selected for notice here. Professor Gilbert Bourne sketches, in an article entitled "Fifty Years of the *Quarterly Journal of Microscopical Science* under the editorship of Sir E. Ray Lankester," the immense progress of zoological science accomplished in that period as illustrated by the work published. The names of the authors mentioned include by far the greater number of prominent zoologists of to-day and the immediate past. Almost the only conspicuous name omitted which we have noticed is that of Professor Bourne himself.—A highly interesting paper by Mr. Bahl, of the Allahabad College, contains a renewed investigation, under favourable conditions, of the nephridia of certain Indian earthworms belonging to several species of the genus *Pheretima*. A new fact of importance is the discovery of abundant openings of the excretory tubes into the gut, thus throwing doubt upon (as Professor Woodland observes in a footnote), or at least demanding a reconsideration of, the view held by many that these organs are purely ectodermic in origin. Mr. Bahl also asserts that the multiple nephridia of the *Pheretimas* are isolated, and that there is no connexion between those of one segment and the antecedent and succeeding segments. He does not, however, as we understand him, do more than assert this generalisation for the species with which he was actually concerned.—In an article On the Terminology of Parthenogenesis the editor usefully reviews and corrects existing phrases in vogue among biologists for the various phenomena of asexual reproduction. For instance, the production of a tadpole from an unfertilised egg which has been stimulated to development by the scratch of a needle, or the "broods of greenfly produced without the intervention of a male parent" have been spoken of as "parthenogenesis." It is impossible, as Sir Ray Lankester says, to use the same term for the condition of the mother and that of her offspring. Such cases are best termed "impaternate." Minute cytological work is shown in Mr. Goodrich's paper on the pseudopodia of invertebrate leucocytes, which are not, he shows reasons for thinking, actual, more or less rod-like, mobile, outgrowths, but the optical expression of folds upon an extremely delicate membrane.——The issue also contains the Presidential address by Mr. J. E. Barnard, a technical memoir upon eye-pieces, and the usual abstracts, so useful to zoologists and botanists, of current literature on those sciences.

THE LANCET.

LONDON: SATURDAY, JANUARY 24, 1920.

The Insurance Practice Settlement.

AFTER strenuous exertion on both sides a settlement was reached late on Wednesday evening, Jan. 14th, between the representatives of the Ministry of Health responsible for administering the Insurance Acts and the representatives of the practitioners who provide the medical benefit, and a letter embodying the terms of this settlement reached the secretary of the Insurance Acts Committee of the British Medical Association in time for insertion in the supplement to last week's *British Medical Journal*. It is now generally known that the increased capitation fee of 11*s*., offered by the Government in place of the 13*s*. 6*d*. claimed by the Conference of Panel Committees, was at first refused by the Insurance Acts Committee, and then, in accordance with the discretion given to the Committee at the Panel Conference, referred to arbitration. The reference to the arbitrators, who will, we understand, include a medical man, an actuary, and a lawyer, will be to advise the Government what capitation rate will afford to insurance practitioners fair remuneration for the services required under the new Medical Benefit Regulations for 1920. The arbitration is to be confined to this single issue, it is to be completed within four weeks, and the award is to be binding upon both sides. On the part of the practitioners the condition is attached that panel committees will do all in their power to secure a full and efficient medical service, with good will, under the settlement as a whole.

Whatever the award may be, and it is important in the interests both of the insured population and the medical service that this should approach the figure desired by the medical profession, it will have the element of immediate finality. The capitation basis of 11*s*. comes into force as from Jan. 1st, the basis as settled by arbitration on April 1st, and it is part of the pledge given by the Insurance Acts Committee, on behalf of insurance practitioners, that their work will be done with good will on this financial basis. It was obviously necessary to fix some basis to enable both parties in a huge coöperative concern to carry on during a transitional period. But the settlement also contains the element of future flexibility. The Government has elected not to enter upon any arrangement binding for a term of years, but, in view of further legislation affecting the whole working of the Insurance Acts, to leave open the path to readjustment after consultation with the representatives of panel practice. Changes, as they become inevitable, will be made step by step after mutual counsel between the contracting parties, and with the increasing confidence of honest intention which is always the result of familiar intercourse. The ground is now being laid for a more informed, and therefore a fairer and easier readjustment, when the time comes to discuss again the basis of remuneration.

Another aspect of the conversations between the Ministry and the Insurance Acts Committee is of equal or greater importance. In most cases, it is stated, the Ministry met the desires of the Panel Conference, and the new Regulations which come into force on April 1st represent a very large amount of give and take. Only in regard to the clause dealing with the transfer of practices is the concession obtained less than had been hoped for. But here, it is to be remembered, the Regulations allow a large liberty in administration, and as the clause now stands the possibility is not excluded of Insurance Committee and Panel Committtee arranging for the allocation of patients in a manner best adapted to local needs, with proper consideration both for the rights of the patient and of the doctor. No one who looks beyond the conditions of present-day insurance practice into the future possibilities of prevention of disease can postulate the goodwill of a practice as an unalterable and inalienable attribute. Wise foresight suggests the adoption of some pension scheme which should gradually free the practitioner from dependence upon his patients as goods and chattels. Relief from carking anxiety, a main object of the Insurance Acts, is just as desirable for the practitioner as for the insured person.

Diverticulitis.

DIVERTICULITIS is a comparatively new disease, if we hold that a disease is born by being given a name. The first classification of cases of the disease was made in 1908 by Dr. W. H. MAXWELL TELLING, who opened the recent discussion on the subject before the Proctological Subsection of the Royal Society of Medicine, and since 1908 the condition has received more and more notice, until at the present time its importance and its frequency are being fully recognised. The condition, unnamed, was identified as far back as 1885 by Sir ARBUTHNOT LANE. By the term diverticulum is meant a pathological sacculation proceeding from some portion of the large intestine, and chiefly seen in relation with the sigmoid flexure. The walls of these diverticula are formed not by all the coats of the bowel, for the muscular coat is wanting. As to their ætiology there is nearly general agreement that they must be explained as caused by some form of increased pressure within the bowel, but there is evidence that this is not the whole truth, for in some cases many are present and in others they are few in number. In some there seems to be a special weakness of the involuntary muscle fibres of the body, for cases have been described in which diverticula of the bladder were found to co-exist with diverticula of the colon. By certain writers stress has been laid on venous congestion

as a cause of the existence of diverticula, but in a series of bodies examined by Mr. HAMILTON DRUMMOND, many of them were those of elderly people with chronic heart disease and marked back pressure, yet in none were diverticula found. Evidence of intestinal obstruction was present in only 10 per cent. of the cases of diverticulitis, but this does not preclude the possibility of increased pressure within the bowel in the other cases. LANE, in a paper written for the Guy's Hospital Reports, and quoted from elsewhere in this issue of THE LANCET, described a case of multiple diverticula from the colon, and expressed the opinion that the two factors in the production of the saccules were the action of tension and the presence of fat. The suggestion that these diverticula are congenital in origin was put forward before the Subsection by Mr. G. GREY TURNER, but this idea did not find favour with Mr. ERNEST MILES, who regarded an increase in the intracolic pressure as the essential cause. It will be best at present to confess that we have no certain knowledge of the mode of production of these protrusions, but, as they have been described almost exclusively in those over middle life, the probability of their being truly congenital in origin is but small.

Except to those who have devoted special attention to the large bowel the structure of diverticula may be unknown. For the most part they are small and almost invisible from the exterior of the bowel; and even when the mucous membrane is examined the apertures may easily escape notice unless search is specially made for them. These openings are often very small; they may be as minute as a sixteenth of an inch in diameter; rarely do they exceed a third of an inch, and often they are completely concealed by the rugous mucous membrane. As the diverticula pass outwards they may enter the appendices epiploicæ, and they are then entirely invisible from the exterior. So long as a diverticulum is not inflamed no harm seems to follow its existence, but, as in the case of the vermiform appendix, when fæcal matter collects within it, inflammation is very liable to arise, and from that inflammation several results may follow. The simplest is the formation of adhesions to the surrounding structures, but it is seldom that the consequences are limited to this. The fæcal contents form a reservoir of bacteria and their toxins. The mucous membrane of the diverticulum ulcerates, and this may lead to perforation with extravasation of the contents into the peritoneal cavity, with all the symptoms and results of peritonitis, or the adhesions which have previously formed may prevent the more serious consequences of perforation. If the diverticulum has become adherent to a hollow viscus a fistulous communication will be established between the colon and the other viscus, and in this way may arise colo-vesical or colo-vaginal fistulæ. Again, inflammation of a diverticulum may result in an extensive infiltration of the tissues around the colon with the formation of many adhesions, so that a mass is formed, and to this condition the name of peridiverticular fibrous hyperplasia has been given; this oftentimes leads to narrowing of the gut, with more or less obstruction. Many of these cases have been mistaken, and excusably mistaken, for instances of carcinoma of the bowel, and have been treated by colostomy or colectomy, as appeared best. Peridiverticulitis forms a solid mass in the wall of the bowel with obvious narrowing of the lumen, and the diagnosis between it and malignant disease may be very difficult indeed. Here the X rays may afford assistance. Dr. IVENS SPRIGGS at the recent debate showed that even small diverticula no larger than a currant could be clearly recognised on an X ray plate; but the diverticula which admitted the barium meal were permeable and probably healthy. The presence of healthy diverticula is suggestive of others which may be inflamed, and therefore the X ray plate may be helpful.

The treatment was summed up by Mr. R. P. ROWLANDS in the course of the debate, when he urged that every surgeon, in operating for obstruction of the colon, should keep in mind the possible presence of diverticulitis. Early resection of the whole of the affected portion of the colon with end-to-end anastomosis is the operation of choice, but in late or complicated cases temporary colostomy may be advisable. Sometimes, indeed, it may be desirable to make a short circuit, leaving the resection for a subsequent operation, but this procedure can be required only in late and serious cases. As Sir JOHN BLAND-SUTTON well said, the most important point about diverticulitis is its mimicry of cancer of the colon. Of the many cases that have been recorded of the spontaneous disappearance of an abdominal tumour some were doubtless instances of diverticulitis; there are patients who have refused operation for what they were assured by physicians and surgeons of great repute was cancer of the colon, and yet have recovered to the surprise of their medical advisers. It must never be forgotten that an apparent carcinoma, causing chronic obstruction of the large bowel, may be after all diverticulitis, demanding similar treatment, but with a vastly better prognosis. The discussion at the Royal Society of Medicine has been a valuable one. Many to whom diverticulitis was little more than a name will in future have clear ideas of its nature and be on the look-out for its appearance.

Medical Education and the Poor-law Infirmaries.

SIGNS are not wanting of a new attitude on the part of the public towards medical education. This, they begin to see, is no longer the affair of the schools of medicine only; it has become a matter of public interest. That new standpoint is a legacy of the war, the natural outcome of public interest in recruiting and in pensioning boards,

and more generally in the work and methods of the profession in war-time. The General Medical Council, the State authority upon medical education, has long seen and anxiously discussed the problems ahead, and it is conceivable that in the wider diffusion of experience that now exists some of the difficulties will disappear. The new agreement between St. Mary's Hospital and the Paddington Board of Guardians, by which the clinical material of the Paddington Infirmary will become available for the instruction of the medical students of St. Mary's Hospital, is an excellent example of recognition by the public of scientific needs. The idea is not new, but now that it has been put into practice it should follow that other medical schools will seek to make similar arrangements, when the departure will be seen to constitute a considerable event in the history of medical education and in the life of the Poor-law infirmaries. During the war the Paddington Infirmary was used as a military hospital. When it reopens in February there will be no workhouse, and the infirmary will provide accommodation for 600 beds.

The possibilities of undergraduate instruction in infirmaries are not generally appreciated. In 1913 some 25 per cent. of the total admissions to the Paddington Infirmary were under ten years of age, and in the same year more than half the cases remained in the infirmary for less than one month, over three-quarters for less than two months, and less than 5 per cent. for more than six months. There is therefore no foundation for the widely prevalent view that the wards of these institutions are filled with chronic and incurable disease in aged subjects. The infirmary, in fact, contains about equal numbers of two types of case. In the first group, the nature of the patient's illness and its severity in no way differ from the clinical material in the wards of a general hospital; the majority of cases are children, or patients requiring surgical treatment. The second group is largely made up of a type and stage of disease that is not generally found in the wards of those hospitals, and provides valuable material for investigation and instruction in every form and phase of chronic illness, but especially in diseases of the respiratory tract and in chronic heart disease. In particular this is true of pulmonary tuberculosis. The out-patient department for that disease at a general hospital does not at present meet the need for undergraduate instruction; accommodation in the wards for cases in both the early and late phases of the malady is necessary, but it is not provided, or is insufficiently provided. This the infirmary supplies. The cases received there fall into two groups: firstly, those which are detained pending arrangements for sanatorium treatment; secondly, those which are too advanced to profit by such a course, and which are kept indefinitely. Here indeed is fine material for medical instruction.

The surgical wards of the infirmary are enriched by the inability of general hospitals to take into their beds the number who require admission. Every year a considerable proportion of patients, whose names are added to the waiting list by the out-patient surgeons, have to be subsequently informed that there is no prospect of their being admitted to the hospital. Accordingly, in the compilation of the in-patient waiting list this shortage of beds is kept in mind, with the result that patients whose disease is not likely to be cured by a short stay in hospital are only added to the list with reluctance or for some particular scientific reason. The selection goes farther, for patients suffering from septic infections, such as cellulitis, are referred to the infirmary, and it has become necessary, in some general hospitals at least, practically to exclude all fractures from the wards except such as require an open surgical operation for their reduction. Hence a very large proportion of fractures of the lower limb are passed on to the infirmaries by these hospitals, and the modern student has less opportunity than his predecessors of becoming acquainted with the treatment of fractures. It has been possible for him in the past to go through his course only rarely seeing the treatment of such diseases as tuberculosis of the spine and hip, chronic septic osteomyelitis, the palliative treatment of malignant disease, and some acute inflammatory and orthopædic conditions. Further, a hitherto distinct hiatus in medical education should be filled by the provision of psychiatric clinics for incipient mental disease, while if these clinics are established in the infirmaries there is need for a recognised authority on psychiatry to direct the treatment, and for workers in pathology to take part in scientific investigation. In an agreement between a general hospital and an infirmary these needs should be met, and the student have an opportunity of seeing the early manifestations of mental disorder.

The arrangements between St. Mary's Hospital and the Paddington Infirmary will result in something more than an addition of 600 beds to those at St. Mary's. They will provide facilities for instruction and investigation which do not at present exist in general hospitals. It is probable, too, as the outcome of the provision of a wealth of clinical material, that out-patient teaching at the general hospital will devote itself more to the beginnings of disease, and to a type of case in which the malady is not sufficiently advanced to provide gross physical signs. When the student's preoccupation of mastering signs is safeguarded elsewhere, he will be encouraged to follow an illness throughout its course and to interpret the first warning symptoms in the light of subsequent events. The public gain directly by the conversion of a Poor-law infirmary into a modern hospital, equipped with the same resources as those of a general hospital, and, like it, able to enlist the services of a large staff. They gain indirectly in that greater facilities for becoming efficient are placed in the hands of those who in the

future will become responsible for the health of the country; and it is in the recognition by the guardians of this indirect gain that the real significance of the change is to be found. While the cottage hospital exists for the care of the sick poor and for the provision of local benefits, the general hospital to which a teaching school is affiliated has a larger mission. A teaching school exists to set up a standard of efficiency throughout the country, to add to knowledge, and to secure the common good by sending out from its walls graduates fully equipped to take their part in the work of medicine, preventive as well as curative. The success of that work is brought a little nearer by the action of the Paddington Board of Guardians.

Annotations.

"Ne quid nimis."

UNSTABLE HYDROGEN PEROXIDE AND ITS STABLE SIMILARS.

THE announcement by the War Office in an Army Council Instruction issued recently that the supply of hydrogen peroxide to military hospitals will be limited to very special cases which cannot be treated satisfactorily by some other antiseptic will be viewed with dismay by those who have cause to appreciate the application of this cleansing and healing agent. We understand that this action has been taken in view of the unstable nature of hydrogen peroxide solution, the difficulty of obtaining and cost of suitable containers, the excessive loss by bursting and leakage, the great bulk of the liquid, and the high cost of transport. The virtue of peroxide of hydrogen in medical practice lies in its profuse oxygen content—a fact, of course, which gives rise to its instability. Were the compound stable, medicine would probably have a very limited use for it. But the extemporaneous preparation of hydrogen peroxide solution is by no means difficult, and we bring the suggestion forward to the notice of those who may suffer from a curtailment of supplies. It is well known that there are per-salts—as, for example, the per-borates and the per-carbonates—which readily yield available oxygen. All these are obtainable in the dry state, and therefore the drawbacks raised by the War Office as regards instability, loss of oxygen, difficulty of safe transport of hydrogen peroxide, do not obtain. As an example it may be quoted that 170 g. of sodium per-borate dissolved in a litre of water containing 60 g. of citric acid will give the equivalent of a litre of peroxide of hydrogen of "10-volume strength." The ingredients should be available in tablet form. Then there is per-carbonate of sodium, now made in commercial quantities, which can be similarly treated for the production of peroxide of hydrogen. It may indeed be an advantage to use these salts without the addition of an acid at all, for they practically present the oxidising power of peroxide of hydrogen in the presence, of course, of the alkaline salts respectively, borax and carbonate of soda. These points may be well worth considering where, though the need of peroxide of hydrogen may not be urgent, the active antiseptic and healing agency of its nascent oxygen is indicated or preferred.

THE NEED FOR ISOLATION HOSPITALS.

THE seasonal wave of the more common acute infectious diseases has by its unwonted volume drawn attention to the need for greater facilities for isolation. The daily press has brought embarrassing publicity to a number of highly respectable districts in the throes of scarlet fever, or diphtheria, or measles; while many others, probably no less implicated, have rejoiced to be able to blush unseen by the relentless eye of the reporter. This attention on the part of press and public, while rather fortuitous and undiscriminating in the choice of district to be pilloried, nevertheless serves a most useful purpose in awaking the communal conscience to the necessity for further means of isolation. For it must be recognised that although our cities and larger towns are second to none in the world in their provision of isolation hospitals, the small urban districts and a considerable proportion of the rural districts have notoriously failed to meet their responsibilities in this respect. Moreover, for two other, and very different, reasons there is some danger of a slackening of pace in the provision of isolation hospitals. In the first place, it was becoming somewhat of a fashion before the war to look coldly on the spread of isolation hospitals, to ask whether they were in fact a serious influence in diminishing the prevalence of infectious diseases, or whether they should not now be regarded as a not altogether necessary luxury in view of the decrease in virulence of most of the diseases with which they had happened to be concerned. In the second place, there has of late been a danger—perhaps as yet rather potential than actual—that the enthusiastic administrator of to-day, seeing that preventive medicine is now emerging from the lower plane of supervision of the environment to the higher one of care of the individual, may, in looking upwards, be oblivious of the many and huge gaps in that supervision.

The chief difficulty, however, is naturally that of the purse. Even before the war it was more than difficult for the average rural authority to provide its own isolation hospital. With the present enhanced prices it becomes almost impossible. From all points of view the intervention of the county council to exercise its powers of combining rural and the smaller urban authorities into hospital districts becomes the wise solution of the difficulty. Not only are the hospitals of a combined hospital district more likely to be economical in construction than the individual diminutive hospitals of separate authorities, but they can be better staffed and more efficiently managed, while the introduction of the motor ambulance has abolished one of the main difficulties in the practical utility of such hospitals for a wide area. Even under the Isolation Hospitals Acts of 1893 and 1901 county councils had wide powers in this respect, and could take action either on a petition by a district council or by 25 ratepayers, or on a report by the county medical officer of health. The procedure involved in the holding of an inquiry and the subsequent definition of a hospital district and formation of a hospital board was sluggish in the extreme. A stimulus to speedy action was given in 1913 by the Public Health (Prevention and Treatment of Disease) Act, which made provision for the recognition of county councils as local authorities for the purpose of erecting isolation hospitals. By obtaining an Order from the Ministry of Health, a county council

can itself provide such hospitals and charge the cost to the districts concerned. It is now time that county councils should awake to a full sense of their increased powers and obligations. Their medical officers of health should be directed to report on the existing isolation hospital accommodation in the area, as a preliminary to a scheme for provision which shall at last be adequate for the needs of the community.

AN IMMUNITY REACTION.

THE Schick test for susceptibility to diphtheria has so far not received the same attention in this country as in America, or as its value would seem to warrant. Like the von Pirquet reaction in tuberculosis and the Calmette ophthalmic reaction in typhoid, the Schick test depends upon the presence or absence of specific antibodies in the blood, though according to Dr. H. Mason Leete's suggestive paper, which we publish in this issue, it is much more reliable than either of the former tests in practice. Dr. Leete's experience of the Schick test was obtained in the wards of the Edinburgh Fever Hospital, where he made an extended trial of its reliability as an indicator of diphtheria susceptibility, the results of which he embodies in his article, together with detailed instructions as to the necessary technique. According to Dr. Leete, with due care in its application, one important factor in which is the use of a reliable, carefully standardised toxin, the error in experienced hands is only 1 or 2 per cent., a pronouncement which constitutes a high tribute to its efficacy. As a test for the presence of diphtheria antitoxin in the blood in the case of persons who have been passively immunised against the disease, its value is amply confirmed by Dr. Leete's experience. Whether, however, as Dr. Leete believes, the reaction can be regarded as an equally trustworthy indication of the presence or absence of natural antitoxin and consequent immunity, or the reverse, is not so certain. The question is one not easy of settlement, since the crucial test—viz., the experiment of artificially imparting the disease in cases previously tested—is inadmissible in the case of human subjects, and to arrive at a conclusion of any value on this point under normal conditions would call for observations extending over a very long series of cases. As far as they go, the cases cited by Dr. Leete of patients who took diphtheria in hospital, and whose reactions had previously been noted, support his contention. In 10 out of 11 scarlet fever patients who contracted diphtheria the Schick test had been positive; in one the test was doubtful. He also quotes the fact that in two young children, who did not contract the disease although they had been in contact with diphtheria, the Schick reaction was negative. This experience, though confirmatory so far as it goes, can hardly be regarded as very convincing.

That different persons should evince varying degrees of susceptibility to infectious disease is interesting in itself, but the fact has a very important bearing on the administration of our isolation hospitals. This is particularly true of diphtheria by reason of its proneness to affect young children, especially such as are suffering or convalescent from recent inflammation of the faucial and naso-respiratory mucous membranes, as is the case in scarlet fever and measles. Any test of susceptibility to diphtheria which is at once reliable and easy of application should prove of the greatest service in hospitals largely devoted to the treatment of children. Not only would it enable measures to be taken for the protection of the children themselves, but it would also provide for the safety of the nurses and others attending on the diphtheria patients. The test should be most helpful in the allocation of both patients and staff, beyond which, in face of emergency, it would prove the deciding factor in giving prophylactic injections of serum in many cases, and, if thought fit, even in attempting an active immunisation in certain instances. Amongst the community at large the scope and utility of an immunity test like the Schick reaction would not appear to be anything like as great as in hospital practice, at any rate in this country. In America, however, where the diphtheria mortality reaches a higher figure than with us, the application of the Schick test is becoming more extended; indeed, we are informed that the New York Board of Health not only invite mothers to bring up their children to be tested, but even advise and undertake an active immunisation in positive cases.

TRANSFUSION OF BLOOD IN CIVIL PRACTICE.

ATTENTION has again been directed to the important subject of the transfusion of blood by an excellent summary of the literature of the subject which appeared in the December number of *Medical Science*. The extensive use of this means of resuscitation of badly wounded men during the war led to a temporary interest being taken in the subject and a considerable diffusion of knowledge of the methods, but it is possible that, with the end of the necessity for practising transfusion on a large scale may come a waning of interest, and that the knowledge may tend to remain restricted to those who practised it during the war. Another factor in the restriction of the knowledge and use of blood transfusion is the large claim that has been made for gum-arabic solution as a substitute for blood in the treatment of shock. This claim has not been fully admitted by many of those who have used gum on a large scale, but it is nevertheless widely believed that gum solution is "as good as blood" for purposes of resuscitation, and the comparative ease with which gum is administered helps to relegate blood, most undeservedly, to a secondary position. Urgent blood transfusion may not have to be done very frequently in civil practice, but it is nevertheless necessary that the theory and methods should be taught in the hospitals, so that house surgeons may be able to carry it out as an emergency procedure. The purpose of the summary in *Medical Science* is to draw attention to the uses of blood transfusion in civil practice, and it is evident from the papers summarised that the chief importance of the procedure in the future is likely to be its use as a therapeutic agent. It has been extensively used in America, notably at the Mayo Clinic, where 1036 transfusions were carried out between Jan. 1st, 1915, and Jan. 1st, 1918, the citrate method being used in the majority of the cases. The evidence as to the results is not yet complete, but there seems to be no doubt that considerable success has attended the therapeutic use of blood. The chief obstacle in the way of blood transfusion in this country is likely to be the provision of suitable blood donors. For therapeutic purposes a relative of the patient could probably be found willing to give blood, but in an emergency there

might be some difficulty. The organisation of a hospital does not permit of the use of one of the staff of attendants as a donor, though in a teaching hospital a volunteer could probably be found among the students. Until there has arisen in England a new class of "professional blood donors," each hospital will have to make such independent arrangements as it thinks best.

THE NEW HOSPITAL FOR TROPICAL DISEASES IN LONDON.

IT is expected that the new hospital for tropical diseases, which is to be situated in Endsleigh-gardens, Euston-road, will be ready for patients this month. Roughly speaking, 58 to 60 beds will be available. One floor will be devoted to private patients, including cases from the India Office and Colonial Office, and for them small private single- or double-bedded rooms have been set aside. On another floor general cases will be dealt with, and here there will be two roomy wards, with a few single rooms in addition for special cases. The old tropical hospital at the Albert Docks, a branch of the Seamen's Hospital at Greenwich, is to be utilised as a source of supply for the new hospital, cases being transferred from there as required by ambulance. The physicians will be Dr. C. W. Daniels and Dr. George C. Low, both old superintendents of the London School of Tropical Medicine and both widely known for their researches and work on tropical medicine. As assistant physician Dr. P. Manson-Bahr has recently been appointed. Such a hospital should prove a great boon to a large class of sufferers from the tropics, because here they can be properly housed, have every attention, and, what is most important, be treated by expert consultant physicians with special knowledge of their diseases.

Running in connexion with the hospital will be the London School of Tropical Medicine under the care of Dr. H. B. Newham as director. Students will thus have the advantage of studying the cases at first hand and will also be trained in the scientific methods required for their diagnosis and treatment. It is expected that there will be a wealth of clinical material available and valuable research work will, we have no doubt, accrue from its study. The easy accessibility of the new building will be one of its chief assets.

ON PASSIVE MOVEMENTS.

IT appears that the majority of recommendations for treatment brought in from their local committees by pensioners are for treatment by "massage and passive movements." How futile would be treatment on these lines were it carried out is indicated by Mr. E. Stanley Brentnall in a brief but important note which we print on p. 198. Not everyone who is possessed of a limb that is not perfect can be benefited by massage or by passive movement. Dr. A. F. Hurst has emphasised the care which must be taken in all physical treatment lest we rub into a patient's mind the conviction of disability while we are trying to rub the disability out of his limb. It seems to be enough in some quarters for a patient to complain of pain or disability to ensure that he shall be recommended for treatment by massage. Valuable though physico-therapeutics have proved to be, they have their limitations, and the amount of time and energy that is expended in futile attempts to perform the impossible is, we fear, not inconsiderable at many clinics for pensioners. When a patient has been recommended by his local committee for treatment, before it commences he should be examined by a physician or surgeon competent to judge whether the treatment recommended is calculated to secure amelioration of the symptoms, and again by an expert in the treatment to be carried out, whose duty it would be to prescribe, in exact detail, the nature of the treatment. Medical referees attached to local war pension committees may not be qualified by experience in physical therapeutics either to prescribe the nature of treatment required by any individual or to judge whether the time has come that physical treatment can no longer be of benefit. Referees without special knowledge should order "treatment by massage for one month." The pensioner should be sent to a clinic for advice and, if necessary, for treatment. The case should then remain in the hands of the expert until he has done all that he can for his patient. Lack of definite instruction is responsible for the administration of much treatment by massage and passive movement which, if not entirely futile, is at best of only secondary importance as compared with active exercises and functional use, while the latter may be withheld if not specifically ordered. Treatment is thus unduly, it may be indefinitely, prolonged. Another point raised by Mr. Brentnall is the danger of passive movement. Of this, as a therapeutic measure, he has very little to say that is good, and much that is bad. Yet the disciples of Lucas-Championnière regard passive movement as an invaluable asset in treatment, and one devoid of danger if properly administered. This sharp divergence of opinion calls urgently for elucidation, for on the solution of the problem rests, in large measure, the whole question of manipulative technique.

SYNTHETIC ALCOHOL, AMMONIA, AND NITRATES.

SYNTHETIC methods are very much in evidence just now, and it is probable that great synthetic triumphs of the utmost importance to the industrial and economic world will be achieved at a quite early date. Only in August last we referred to the suggestions of the Inter-departmental Committee on the Production and Utilisation of Alcohol for Power and Traction Purposes. Those suggestions are evidently materialising, for the Department of Scientific and Industrial Research now announces the appointment of a Power Investigation Officer in accordance with the recommendations of the Inter-departmental Committee. The Fuel Research Board, acting under the Department of Scientific and Industrial Research, proposes to begin by bringing the work already being done, both as regards production and utilisation of alcohol, into proper focus. Sir Frederic Nathan, who has been appointed the Power Investigation Officer, was, before the war, superintendent of the Royal Gunpowder Factory at Waltham Abbey, and later works manager of Messrs. Nobel's explosive factory; he was subsequently appointed as officer in control of alcohol under the Ministry of Munitions during the war. He is now entrusted with the survey of the present position and with making proposals to the Fuel Research Board for such experiment and research as may from time to time appear to be necessary. The Department of Scientific and Industrial Research points out that it is obvious that until a more or less accurate estimate has been made of the possible sources for the production of alcohol within the empire, and until their

probable amount and the cost of using them have been ascertained, it would be useless to embark upon research on any extended scale into methods of production or utilisation. The synthetic process of producing alcohol from ethylene extracted from coal-gas was described in an annotation in our issue of August 23rd, 1919.

It is well known that Germany adopted, from sheer necessity, a more or less successful process for the manufacture of nitric acid from the air. This process has been carefully investigated by English and French chemists, and last week a report was issued by the Nitrogen Products Committee (Cmd. 482), which recommends the adoption of the Haber process for the production of ammonia and the subsequent oxidation of this into nitric acid. The output might reach 10,000 tons of the acid, ultimately to be converted into nitrate for agricultural purposes. It was, however, announced in the *Times* of Jan. 17th that this process has been eclipsed by a new French process, the rights of which have been secured for the United Kingdom, South Africa, India, Australia, and New Zealand. Extensive works are to be erected in Cumberland, where there is a plentiful supply of good hydrogen-yielding coal providing the partner for the nitrogen of the air in the formation of ammonia gas (NH_3). By this process it is anticipated that no less than 50,000 tons of sulphate ammonia will be produced. What a remarkable confirmation is this of Sir William Crookes's striking prediction, in his memorable presidential address before the British Association for the Advancement of Science at Bristol in 1898, that sooner or later we should have to go to the air for our ammonia and nitrate supplies, and so maintain the food requirements of the world! It means, too, that the nitrates of Chili are no longer indispensable, besides which the supplies there are rapidly getting exhausted. It is to be hoped that these wonderful developments of synthetic methods will find their application in a world's peace, for nitrogen can obviously serve the activities either of ploughshare or sword.

THE ASSOCIATION OF SURGEONS OF GREAT BRITAIN AND IRELAND.

IN June, 1914, a meeting of surgeons of Great Britain and Ireland was held at the house of Sir Rickman Godlee in London to consider a suggestion made by Sir Berkeley Moynihan that an association of British surgeons should be formed. The principle was decided in the affirmative, but the outbreak of war put an end for the time to the taking of any practical measures. The opportunities of coöperation and mutual discussion afforded by army service encouraged the promoters of the association to further effort, and at a recent gathering at the Royal College of Surgeons of England, many surgeons being present from all parts of the country, Sir Rickman Godlee set forth the objects of such an association. He spoke of the need which had long been felt by surgeons in the British Isles for meetings at which they could learn each others' methods and discuss informally the many unsettled questions of surgery. In order that discussion might be free and frank it was proposed that no reporters should be present at the meetings, every member being left at liberty to publish his communications as and when he pleased. The *British Journal of Surgery* had been selected as the official organ of the Association. Annual meetings were to be held in different centres, those with medical schools being preferred. Sir George Makins mentioned the pleasure and instruction which he had derived from the provincial visits of the Surgical Section of the Royal Society of Medicine, and after he had spoken the draft of the rules was accepted by the meeting. The private character of the meetings, whatever drawback it may have in other respects, will allow of the presentation of tentative suggestions and the discussion of abuses. Members may enjoy the benefits of mutual criticism, while their ideas and methods are still plastic. Freedom of intercommunication makes for the advancement of science, and is a substantial guarantee against misunderstanding.

MEDICAL APPEAL BOARDS FOR OFFICERS.

MEDICAL Appeal Boards for officers, each consisting of a Deputy Commissioner of Medical Services, as chairman, an appropriate specialist, and a medical assessor, are being established at the regional headquarters of the Ministry of Pensions or at other convenient places within the respective regions. The Ministry announces that these Boards will hear all appeals based on dissatisfaction with the assessment of the degree of disablement. The Medical Appeal Board will also deal with claims based on deterioration of health since the last Board and made within one month of the date of the last Board, such claims being deemed to be based on dissatisfaction with the assessment. Claims in the latter category, made after a month, will be dealt with by special machinery which has been set up for the purpose. The Board will have before it all the relevant medical documents, including proceedings of the previous Board and any medical information which the appellant may furnish, so that it may be in a position to give an authoritative opinion. It will have power to raise, or lower, or confirm an assessment, and the decision will be binding for the currency of the previous award, provided that it will not preclude the review of the assessment during that period, if the officer claims that his condition has become substantially worse since the decision. Officers desiring to appeal or claim a reassessment must communicate direct with the Secretary, Officers' Branch, Ministry of Pensions, Chester Gate Huts, Regent's Park, N.W.1.

CYSTIC URETHRITIS.

Dr. Maximilian Stern and Dr. I. Sidney Ritter,[1] of the Broad-street Hospital, New York, report the following apparently unique case. The patient was a man, aged 26, who had had gonorrhœal urethritis a year previously, and had been treated locally with solutions of argyrol, protargol, and potassium permanganate. As the discharge still persisted he was sent to hospital for diagnosis and treatment. When seen by the writers the patient had a slight watery urethral discharge, a smear of which showed a few pus cells but no diplococci. On cystoscopic examination the bladder was negative. Bullous lesions were seen just internal to the vesical sphincter. Throughout the posterior urethra there were grape-like clusters of cells, each having its individual blood-vessels. Numerous flat, irregular cysts were seen along the pendulous portion of the urethra up to the meatus, with an occasional small cluster of cysts resembling those found in the posterior

[1] The Urologic and Cutaneous Review, December, 1919.

urethra. The gelatinous contents of the cysts were easily expressed by the cystoscope, after which they presented the appearance of small tendrils, each with a red streak through its centre, indicating the presence of a distinct blood-vessel. The case was treated by fulguration three times at fortnightly intervals, together with instillations of 5 per cent. argyrol three times a week. Two weeks after the third fulguration no lesions could be found throughout the urethra.

THE LOCAL DISTRIBUTION OF MILK.

THE extension of the powers of local authorities to supply milk to children and to nursing mothers has been rapid. The latest step is the revocation of the Milk (Mothers and Children) Order, 1918, and the substitution of another Order which contains important provisions. Local authorities are now empowered to supply milk free or at less than cost price not merely in necessitous cases, but also where such a supply is deemed necessary because of the high retail price of milk in any area. While the Ministry of Health will supply the necessary funds under both conditions, the local authorities are reminded that a distinction must be made in their accounts between milk supplied to necessitous cases, under the Maternity and Child Welfare Act, 1918, and that supplied under the powers conferred on them by this new Order. The expression "milk" will be taken to include any preparation of milk prescribed by the medical officer of health or medical officer of a maternity and child-welfare centre, working in coöperation with the local authority. The addition of a maximum scale of quantity of milk to be ordered will be welcomed as an indication to prescribers. Children under 18 months may be ordered up to one and a half pints daily, between 18 months and 5 years one pint daily, while nursing and expectant mothers are left to the discretion of the medical officer certifying their need. Local authorities are urged by the Ministry of Health to extend their arrangements for the supply of milk under the Acts and to make known in their districts the local facilities provided.

A SUPPLEMENT [Cmd. 462. Price 1s. 3*d*.] has been issued to the forty-eighth (and last) annual report of the Local Government Board, containing the report of the medical department for the year 1918 with observations extending down to the end of June, 1919, when the Board ceased to exist. The supplement is mainly concerned with the records of certain infectious ailments, the progress of work for the prevention of venereal disease and tuberculosis, and that in connexion with maternity and child welfare, food inspection, and port sanitary administration.

A DRAFT scheme has been prepared by which the British Red Cross Society and Order of St. John of Jerusalem may be able to come to the immediate assistance of the voluntary hospitals, whose financial position, as a whole, has become critical. A conference will be held, under the auspices of the British Hospitals' Association, at St. Thomas's Hospital, to-day, Friday, Jan. 23rd, at 3 P.M., presided over by Mr. Wade Deacon, chairman of the Liverpool Royal Infirmary. Sir Arthur Stanley, chairman of the Joint War Committee of the Society and the Order, will submit the scheme, which is aimed at relieving the present difficulties of the hospitals.

MEDICAL PRACTICE IN BELGIUM DURING THE GERMAN INVASION.

(FROM OUR SPECIAL COMMISSIONER.)

I.

Dr. Pechère's statement to the Belgian Doctors' and Pharmacists' Relief Fund, published in THE LANCET of Dec. 20th last, justly evoked a profound and sympathetic emotion in this country, and represented, I know, the feelings of his countrymen. Much was said in but few words, and it was all well said; yet a great deal remains unrecorded, which your readers may like to learn from the personal experience which I have had an opportunity of obtaining.

The Story from Within.

Dr. Pechère explained the unavailing attempts that were made to send information over to England. The British subscribed to relieve distress, and the Belgians, in describing this distress, had to give details concerning the massacres of defenceless inhabitants, the pillaging and burning of villages. But the Germans did not intend to have their barbarous conduct thus exposed. They seized the correspondence, including the minutes of the Belgian Relief Committee (Comptes Rendus de l'Aide et Protection aux Médecins et Pharmaciens Sinistrés). Of course, before deciding what relief should be sent it was necessary to show why the relief was wanted. This is just what the Germans would not allow. The British doctors and pharmacists on their side, receiving no news, might have sent less help, but fortunately the British Belgian Doctors' and Pharmacists' Relief Fund, obtaining information from refugees, and having sympathetic foresight, took the responsibility of saying that all possible assistance *must* be wanted. And they trusted to fair distribution of anything that could be sent to Belgian organisers. Fortunately, after a while the Belgian doctors and pharmacists managed to get into touch with Mr. Hoover, who was rendering such magnificent service in organising the distribution of food sent from America. When Mr. Hoover heard what had occurred he contrived to forward information to England. The relief funds organised by the Belgians at the earliest moment for their suffering colleagues had been reduced to a very low ebb. At one moment there was not more than 10,000 francs available, whatever the emergency. When the British sympathisers at last heard from unimpeachable authority what was happening, the cheque of the Relief Fund came regularly to the Committee sitting in Brussels. The much-needed and great work of relief was successfully carried forward, at least whenever those who suffered could be reached. This was not always a simple matter. There was the German étappen or zone of communications and what was known as the fire region. There no correspondence whatsoever was allowed, no letters could be sent, no visits paid to the unfortunate inhabitants. To live near the fighting line or the road of the military services meant exile from all the rest of the world. Therefore, some of the relief in money was reserved for those whom it would only be possible to help at some unknown future time. This was a wise precaution, for since the evacuation of Belgium by the Germany army new and very distressful cases have been discovered.

The Terrors of Enemy Occupation.

Among the many victims there are the widows and families of the doctors and pharmacists who were brutally shot, of others who met an honourable death on the field of battle, and of others who died prematurely because of the awful strain and the insufficient food. In common with many of the outraged and oppressed inhabitants, medical men and pharmacists suffered from nervous tension. They were never safe. Anywhere, and at any time, day or night, they might be seized, or soldiers might enter their houses, ransack sitting and bedrooms, open cupboards, drawers, desks, and boxes. After having

reduced everything in the house to a state of indescribable disorder they would go off, unfailingly with some rude parting jest. To show any resentment was to risk imprisonment, for on the slightest provocation the soldiers had the injunction to arrest whomsoever they pleased, and they, for the most part, executed their revolting work with alacrity. No papers and no property were safe. Much loss was experienced, not merely from actual destruction and pillage, but also because the searchers threw records and papers into hopeless disorder. This was notably the case at the town halls, municipal buildings, and administrative offices, but medical records of public and private work shared a similar ruthless fate.

The Work of Self-help in Belgium.

To help victimised members of the medical and pharmaceutical professions the Belgian doctors and pharmacists at the commencement of the war managed to raise at once some 50,000 francs amongst themselves. The medical clubs gave up all their funds, and this sum was augmented to 180,000 francs. The Belgian Ambassador at Rome received 25,000 francs from the Italian doctors, and the American doctors also sent some money. By a terrible tragedy much of this last relief was lost, for, as all remember with the deepest sympathy, the wife of Dr. Antoine Depage was drowned on the *Lusitania* when returning from America, where she had collected large sums on behalf of the Belgian Red Cross and medical services. But the total of money received, added to the British donations from doctors and pharmacists received through the Belgian Relief Fund—this last amounting in all to £27,000—supplied the means of giving help to 140 families of the two professions in their urgent need, while building up a reserve that has proved to be of the greatest value.

It is, however, very important to bear in mind that the money by itself could never have achieved so much had it not been for the admirable spirit of organisation prevailing throughout the Belgian medical and pharmaceutical profession. Speaking now of the medical profession, the Belgians have been among the first people in Europe in arriving at a system of organisation, and of this I may speak from personal knowledge. Under the heading of "The Battle of the Clubs," as far back as August 24th, 1895, I described, in these columns, how out of 450 medical practitioners established in Brussels 430 were paying members of the local Collège des Médecins, which is practically a medical syndicate of unions. Since then I have travelled all over Great Britain and many continental countries, describing the sort of organisations which medical practitioners have built up to defend and promote their professional and economic interests. The altered constitution of the British Medical Association and the National Insurance legislation, introducing panel practice, had as one of their common objects the removal of the abuses which I then described; but in those days, whenever I returned to Belgium, there was always some fresh and encouraging development, showing, to my mind, that the Belgians were more alert than the British in taking practical steps to help themselves and to realise professional unity. But to-day, after this terrible war, it was with much apprehension that I landed once more in Belgium. How could such a delicate organism as a professional union survive the shock of an invasion and long years of military occupation and oppression? The result has been just the contrary to what it was so natural to anticipate. No more emphatic vindication of the principle of professional coöperation could possibly be supplied than the fact that the Belgian Medical Union has not only survived the invasion, but, under this great strain and trial, has become stronger and more closely united than at any previous period.

Professional Union in Belgium.

Dr. Pechère, President of the Belgian National Relief Committee, Dr. Herman, President of the Belgian Medical Federation, and Dr. Antoine Depage, in welcoming me to Brussels, were able to explain joyfully that the war had drawn the medical profession closer together. The greater the difficulties of existence, the more the members of the profession had felt, and were feeling, the need of mutual support. Actually there were about 4000 medical practitioners in Belgium; more than 3600 were members, and good stalwart members, of the Belgian Medical Federation of Legally Recognised Professional Unions. (These were the figures given to me, and they show a smaller proportion considerably of medical men to population than prevails in England.) This does not mean an abstract recognition and approval of certain principles. It means the signing of a document that constitutes a legal bond. The statutes appeared officially in the *Moniteur Belge* of March 25th, 1911 (Act No. 182). Six articles define the objects of the Belgian Medical Federation, and the first article says that its purpose is to watch so that the principles of deontology which should govern medical practice are duly observed. Naturally this implies defence, mutual protection in moral and material questions; the exercise of influence upon the Government, so that the profession may harmonise with the Government. The second article deals with conciliation and arbitration in cases of disputes, and the third with the material interests of the profession. This latter stipulates for united action in negotiating with insurance societies and institutions such as benefit clubs, and the establishment of a minimum medical tariff. In a word, all the principal economic problems are involved.

When a question arises that is of sufficient importance, it can be submitted to all the unions, and what might be qualified as a national verdict is obtained. There are 40 medical unions, federated into one National Union, with headquarters at Brussels. Every local union can send a delegate to Brussels. If it has more than 50 members it can send two delegates, and three delegates if there are more than 100 members. According to law, dating from 1899, these societies have the right to buy and own property, and they may take any name they please. In this respect it is curious to note that the newer bodies adopt the word "syndicat." Therefore we have Le Syndicat Médical de Verviers, Le Syndicat Médical du Centre, &c., thus seeming to assimilate the claims of intellectual labour with the other forms of labour, and recognising the need of united action for the one as for the other. In any case, it was this spirit of organisation, of association, and of mutual support, taught and engendered before the war, that has enabled the Belgian medical profession to stand shoulder to shoulder and survive in spite of the war.

The Results of Extended Coöperation.

Only this faculty of organisation could have saved the previous situation. All the old landmarks were destroyed, the old customs could not be maintained, all the men of military age had disappeared, the factories and workshops were closed, some were destroyed, or the machinery they contained was carried away to Germany. Well-to-do clients found themselves penniless. In large towns many patients were able to continue paying their medical attendants, but in the country this was rarely possible. Therefore, what was done in former times for the poorer sections of the population had now to be extended to 600,000 families. Counting an average of four to a family, this meant two and a half million persons, or a third of the entire population of Belgium. For all these people the National Committee organised a system of medical and pharmaceutical help, but this would have been quite impossible had it not been for the assistance of the members of the medical unions. Nor would mere goodwill and a general desire to help have sufficed. A technical, practical experience of the working of what in England is often called the club system was necessary. Yet there was a great difference, a delicate complication needing much tact and kindly feeling. It was absolutely necessary to give help—money, food, clothes, just the minimum required to sustain life—to persons who had been in a good position, who were temporary war victims, and who, above all, should be spared needless social degradation.

The first principle set down was that each family, however poor, should keep their own doctor if he was

still on the spot and willing to attend. The National Committee would give him not payment, but an indemnity; and this was done on the basis, at first, of 6 francs a year. In the course of time the allowance was raised to 9 francs, and is now 12 francs a year. This system of wholesale medical insurance proved a double blessing; it not only saved the patient, but in many cases it also saved the medical practitioner. As most men of the military age are just those who are best able to pay medical fees, the medical practitioner found that most of his paying patients had been compelled to fly on the approach of the invaders. But his position was saved when the National Committee paid him from 6 to 12 francs per annum for every family on his list.

(To be concluded.)

A STATE MEDICAL SERVICE:

A DEBATE BEFORE THE MARYLEBONE BRANCH OF THE BRITISH MEDICAL ASSOCIATION.

ON Jan. 16th, at the Rooms of the Medical Society of London, Chandos-street, W., at a meeting of the Marylebone branch of the British Medical Association, a discussion took place on the Future of the Medical Profession under a Salaried Whole-time State Medical Service. Dr. C. O. HAWTHORNE, who presided, said that such a discussion was appropriate to the day and hour, for circumstances had compelled the consideration, or rather the reconsideration, of the form and fashion in which the medical profession could best discharge its responsibilities as the director and promoter of public health. Some changes in this direction had already occurred, and other changes were on the horizon. One of the changes proposed by certain members of the profession who had given considerable attention and study to the issue was that no satisfactory position would be attained until the Government established a whole-time State Medical Service corresponding to other public services in the country.

Professor BENJAMIN MOORE, who opened the discussion in support of the formation of a State Medical Service, said that underlying the whole question was the advance which medical science and the medical profession had made in relation to the health of the country. If national medical service was going to be bureaucratically administered, the medical profession being the paid servants, he would have none of it. It was quite evident that some coördination would be brought into medical practice and concerted action was necessary to prevent the introduction of a lay bureaucracy. What he had in his mind was a system something on the lines of the old guilds, the management of which would be in the hands of the members of the profession. He drew a picture of the low standard of health among the working people generally, remarking that if the medical profession would get at it they must go forth and seek it. The public conscience had been more than merely aroused. The question of expense and of other matters in connexion with the coördination of a system could only be approached in a broad way, and the best way was by a salaried service. In order to attract the best brains in the country the service of the doctors must be as well paid as was the legal profession. The working of bureaucratic systems did not prove that nationalisation was wrong, because the country had not yet learned how to get the best out of such systems.

Sir WILMOT HERRINGHAM, opposing the idea of a State Medical Service, said that the scheme proposed was the dimmest that had ever been laid before any body of men on a serious subject. What had been said was that the profession must not wait for patients to come to it till they are ill, or think they are ill, but that the profession must go out to every house in the country to find out who are ill, and that the only way to do so was to have a salaried service, with, of course, £1000 a year. The Government would offer precisely the same pay as it did to other public services. To have to be continually working under an authority was a very strong argument against the proposal. Discipline such as prevailed in the army was not applicable to a progressive profession such as the medical. He thought that public service did, however much the people at the top might desire to prevent it, militate against improvements, against originality, and against enterprise. When Professor Moore said that he aimed at something which was not to be bureaucratic control, and that the whole thing must be taken into the hands of the profession, and that the first thing to be obtained was an agreement on the part of every medical man in the country to carry out a great scheme of this kind—then he said what all have asked for when they want some vast change in the medical profession. But they have failed to get coöperation. He did not think for one moment the medical profession would be able to get complete control of any State organisation. Health matters at the present time were regulated by the local health authorities, the doctors being an advisory body and the managers lay people as they always would be. It was important to consider what ought to be done to improve the public health, but a scheme of this kind was not wanted and would not improve public health. Larger hospital accommodation was wanted, in some places especially, maternity accommodation, proper facilities for consultations, and better communication between the doctor who is looking after the case and the doctor who treats the case when in hospital. Also better pathological facilities were required, and here, as such service could not be paid by fees, there could be a whole-time service paid, and adequately, by the State.

Dr. B. F. HARTZHORNE said that under a State Medical Service the medical man who had gained a position by his own industry would lose his independence.

Dr. R. FIELDING-OULD said that when a man became a State servant he lost the psychical interest between himself and patient and became a machine.

Sir WATSON CHEYNE, M.P., said that with regard to prospective legislation he was looking at it from the State point of view as well as from that of the doctor, but so far he had heard no arguments to convince him that the community would benefit by a State Medical Service for treating patients, though it would have an advantage so far as sanitary service was concerned.

Dr. A. G. AULD said that while acting as tuberculosis officer he had seen lives lost owing to wrong diagnosis by panel doctors. The remedy was a house-to-house visitation, such as coincided with Professor Moore's recommendation.

Dr. ALEXANDER BLACKHALL-MORISON pointed out the good work that had been done in the past by collaboration among medical men before State legislation had been thought of, in illustration of which he pointed to the picture of the founders of the Medical Society of London which adorned the room.

Mr. C. A. PARKER questioned whether the system of private practice which had been going on for years had produced the best results. He did not believe the health of the country would be improved until we had a system under which everyone could get adequate medical relief, the middle class as well as the poor.

Dr. BEDDOES protested against the introduction of a bureaucratic system.

Professor MOORE, in his reply, referred his audience to details which were published by himself and others in THE LANCET about a year ago.[1]

Sir WILMOT HERRINGHAM, who also replied, said that while there was a great deal of disease in the country which the medical profession had not been able to stamp out, it did not follow that a whole-time State Medical Service would meet the case.

[1] THE LANCET, 1918, ii., 85.

THE LATE Mr. E. F. H. BURROUGHS.—Ephraim Frederick Hastings Burroughs, L.R.C.S. Irel., L.A.H. Dub., died recently at his residence at Clifton, in his seventy-fourth year. The deceased, who was a member of an old Bristol family, had practised for many years in Clifton, where he was highly respected.

IMPERIAL WAR MUSEUM: THE NATION'S WAR PAINTINGS.

THE exhibition of war paintings now being held at the Royal Academy of Arts, Burlington House, is of the greatest interest, and we regret to learn that it will close at the end of this month. It follows that any who wish to take the advice we offer, and to see this remarkable collection, will have to act in the course of the next few days.

The exhibition includes the larger portion of the valuable collection of war pictures acquired, whether as gifts or purchases, by the authorities of the Imperial War Museum and by the Ministry of Information. A certain number of important paintings and drawings that have been secured for the nation, including a hundred by Sir William Orpen, are still in America. The collection of portraits, we learn, is by no means complete, and, as it is hoped to add considerably to the series in the future, we suggest that the medical profession counted for something in this war, and that there are at least six medical men, connected in the most distinguished manner with our undertakings on various fronts, whose portraits should certainly be included in any national record.

There is one reason why medical men should go to this exhibition themselves, and should urge the large public whom they influence to go there also—the pictures are perfectly frank: medical men, one of whose greatest difficulties it is to get down to essentials and to eliminate the unimportant, will appreciate the spirit. The work has been constructed from the bottom on the only foundation that can be solid: the fact that the artist's special view is not always the view which the spectator thinks should have been taken; the fact that one painter's accomplishment is indicated by exactly that precision which is wanting in the work of another; and, indeed, the fact that some of the exhibitors are better masters of their medium than others—none of these things have any bearing on the case. The pictures are evidence given by witnesses who desire to tell the truth. There are witnesses who bear better testimony than others, but there is no truthful witness who does not stand beyond comparison above him who palters with fact, refines with issues, or loses his essential points in intruding details.

In the first gallery two pictures (9 and 32), both by Sir William Orpen, depict mines at La Boisselle. It is not easy to guess the scale in these pictures, yet the medical significance of the second canvas (32) depends upon remembering that the interior of this "small mine" is about 80 yards across, so that the crevices depicted are proportionately deep, accounting for the long period during which the caverns were dangerous to life from contained gases. In this gallery note also Mr. Francis Dodd's "Interrogation" (29, referred to later) and Mr. C. R. W. Nevinson's convincing picture (39) "The Road from Arras to Bapaume." In Gallery II., Mr. Wilson Steer's "Dover Harbour, 1918" (54) has the accomplishment we should expect from a painter of international fame. It is an achievement that this apparently effortless piece of beauty should hold the eye in a room where more violent appeals are made. Here Mr. John Nash's "Deserted Trench" (48) brings the right feeling of horror. It is a strong large picture, painted small, and the drawing of the huddled bodies, which is sure, tells us that medical aid in these situations was seldom of use.

In Gallery III. is the picture which has been recognised by the public as the most important one in the whole collection, and we find in Mr. Sargent's "Gassed" (84) a perfect example of frankness. The episode is narrated without embellishment or concealment; it occurred on the Arras-Doulens road during the final advance of the Guards in August, 1918. The artist, learning that a large number of gassed cases were being brought to a Corps Dressing Station, drove there at once with a brother painter and actually saw the frieze of blinded men as he has depicted them, walking in single file, each with his hand on the shoulder of him in front, to receive attention for sudden blindness. The picture is bathed in a beautiful evening light, and its tragedy is heightened by the fact that Mr. Sargent put into the background, to be seen in the intervals of the suffering figures, a game of football which was actually proceeding close to the dressing station, among a merry group of soldiers. The great artist makes the great picture by telling the truth in splendid manner. There was such an evening, and the sufferers suffered, and the players played, just as they are depicted. Pathos is gained by the merriment, and the decorative beauty attained by pattern and by colour.

In the same gallery we find four other important pictures of medical interest, and they are among the finest achievements in the collection. Professor Henry Tonks has a beautiful canvas, "An Advanced Dressing Station in France" (77), in which the charming buildings and living figures make up a moving scene. The ruins of a town, dramatic in their simplicity, stand against a sky whose blue, flecked with white, is charged with heavy clouds behind the tallest fragments. The rest of the canvas is occupied with medical business. Note-taking and the application of tourniquets, the filing in, as in Mr. Sargent's picture, of the blinded, the bearing of stretchers, the reclining wounded have all given Mr. Tonks material for fine draughtsmanship and display of the technical knowledge which, as a F.R.C.S., he possesses. But neither drawing nor technique is obtruded; it is a whole picture, and a notable one.

The other pictures are by Mr. Stanley Spencer, Mr. Gilbert Spencer, and Mr. Henry Lamb. Of Mr. Stanley Spencer's "Travoys with Wounded at a Dressing Station in Macedonia" (75) the thing just said may be repeated; though crowded with incident it remains one picture. It is a vivid representation of mountain ambulance transport. The front of the picture is occupied by the backs of a row of mules, ascending the mountain abruptly with their burdens. On the plateau is a dressing station. With a license justified by the example of primitive Italians, Mr. G. Spencer, most modern of painters, has removed any structures that might impede our view of the scene, and the story culminates in a distant representation, quite faithful enough, of an operation in full swing. The sense of tug on the part of the animals, and of calm procedure in the station are perfectly rendered.

Mr. Gilbert Spencer's "Ward in a Stationary Hospital at Mount Sinai" (70). The realism is here easily intelligible. The study was made just previous to the first attack on Gaza in April, 1917, and represents the interior of a ward after a convoy has arrived. The patients, medical officer, sister, orderly, and necessary properties are set out so that we can understand the scene. But Mr. Lamb's surprising picture (80) of the effects of a Turkish bombardment upon a column of Irish troops in the Judæan Hills is less obvious. Mr. Lamb is an accomplished painter, who had formerly trained for the medical profession, who won the Military Cross for war services, and passed his medical examinations during the war. He has produced a picture which will delight those who can imagine, and will irritate those who only trust their own impressions without knowing the limitations of those impressions. The way in which the soldiers, surprised by the bombardment, are taking cover under the rocky terraces, is, we feel certain, correctly presented.

In Gallery IV., "Indian Wounded in the Dome at Brighton," by Mr. Douglas Fox-Pitt (112), is clever, and makes us feel that whoever selected the Brighton Pavilion for the shelter of Indian patients was clever also; the patients so fit their environment that the placidity which leads to recovery should have been secured. Medicine is little represented in this room, which contains a remarkable picture by Mr. C. J. Holmes, so well known as the Director of the National Gallery that we are apt to forget his rank as a painter. "A Two-Year-Old Steel Works" (102) is a big piece of work.

In Gallery V. one of Mr. Eric Kennington's canvasses "55 C.C.S., Q.5" (188) is a realistic picture of a casualty clearing station. It is in black and white, and the

scene shows a group of patients, not severely ill or dangerously wounded, and many in the recovery stage. In this room we should note also from the anatomical point of view a picture by the same artist, entitled "Infantryman Resting" (225). The way in which the weight of the sitting man is distributed and his body supported by his gun is properly observed. We mention the fact because it is not unusual for the sitting presentments of accomplished artists to wear the appearance of sliding forward out of the frame. Observe in this room, also, the picture by Mr. W. P. Roberts, "An Attack" (228). This record of the capture of the Delville Wood gives a terrible idea of the country in the neighbourhood of the Passchendaele Ridge and of the sufferings of the wounded during the fighting in that area, when it took many hours at night to recover the injured on the battlefield. Alas! a great many in this region perished in the horrible morass. In Gallery VI. "The Doctor" (246), by C. R. W. Nevinson, deserves attention. It is strong, sombre, and rich. The inspection of a head dressing by a medical officer is the main episode, and the mask of suffering worn by the patient shows how near the tragic lies to the comic.

In Gallery VII. a large number of portraits by Mr. Francis Dodd, though not all equally pleasant, mark a high average level of accomplishment; it is in this series that we looked in vain for a protagonist of medicine. Here, also, the same painter has a fascinating picture of a submarine, while a Diesel engine is being repaired (282). The painting was executed while the vessel was submerged; the elaborate engineering work is indicated with force and economy of treatment, the men engaged being drawn with an effectiveness secured in the same concentrated manner. Mr. Dodd is a distinguished painter, for in Gallery I. we noticed a picture by him, "Interrogation" (29), which is one of the best in the collection. There are two British officers, a German prisoner, and a British soldier who brought the captive in. The four faces are a triumph of humorous observation. The intelligence officer is obviously pursuing a routine, but the general is keenly interested in what may be a critical disclosure. The prisoner is of high intellectual type, and aware of the grave issues involved in a situation which frankly amuses the sentry. While the story is thus made clear the picture as a whole is a beautiful and symmetrical thing. Nothing has been added in concession to any idea that it would help the spectator, and, because it is a great picture, nothing of the sort is missed.

This gallery contains also many striking works by Mr. Muirhead Bone, one of which we make bold to pick out for special mention—namely, "Panorama from the Scherpenberg" (311), a beautiful view purely done, and a workmanlike map exposing the conditions of the country. In Gallery VIII. Mr. Gordon's "Action Operating Theatre in a Battleship" (374) and "Burnt and Wounded in a Battleship after Action" (377) will remind us how very high was the percentage of the injuries in the navy due to burning and scorching accidents. In this gallery is a picture, "The St. Quentin Canal" (384), by Mr. Hughes-Stanton, which was painted from the temporary bridge erected across the canal towards Bellicourt. At this spot the canal was crossed by one of the North Midland Divisions of the 4th Army, with the help of rafts, mats, and life-belts; they stormed the Hindenburg line, and an official dispatch states that so well was the attack executed that the one Division took on this day (Sept. 26th, 1918) over 4000 prisoners and 70 guns. The results of the exploit come out in the dispatch, but to understand its splendour one has only to look at this picture. How it was done physically can just be imagined, but the courage wanted must have been immense.

The medical interest in Gallery IX. is small, though the room includes "Saline Infusion" (429), an incident in a British Red Cross Hospital, by Professor Tonks, and a delightful "Interior of a Hospital Tent" (452), by Mr. Sargent. But the whole room is extremely beautiful, the water-colours by Mr. Sargent, Professor Tonks, Mr. W. Rothenstein, and others being quite delightful. "War Allotments in a London Suburb" (424), by Miss Dorothy Coke; "The Soloveski Monastery" (423), by Professor Tonks; the "Tarpaulin over a Dug-out" (455), by Mr. Sargent; "Via Dolorosa" (488), by Mr. Muirhead Bone may be mentioned, but other tastes will make other selections. Gallery X. is composed of Sir John Lavery's collection. All the pictures in the room were presented by the artist, who, however, was only moved to paint one medical picture, "Wounded at Dover, 1918" (513).

If we have drawn attention to some of the most important pictures from the medical point of view, there are many others with similar appeal that deserve inspection. Therefore we repeat the advice with which we began, and recommend our readers to visit Burlington House on one of the remaining days of the month.

SOME NOTES ON THE RECENT FRENCH CONGRESS OF SURGERY.

(FROM AN OCCASIONAL CORRESPONDENT.)

DURING the Twenty-eighth French Surgical Congress, of which a brief account appeared in THE LANCET of Oct. 18th, 1919 (p. 706), a daily series of operations was arranged, and some of the best French surgeons were seen at work. The list of operations was posted at the Secretariat in the Faculty of Medicine. This year among the surgeons operating were Victor Pauchet, T. De Martel, Pierre Duval, J. L. Faure the gynæcologist, Calot the orthopædic surgeon, Marion, Sebileau, and others representing different specialties.

I followed the work of the first three, and though these notes are belated in date I hope your readers will find them of interest.

Pauchet's Technique for Abdominal Operations.

Victor Pauchet performed over a dozen gastro-intestinal operations, besides others; these included gastro-enterostomies, jejunostomies, and gastrectomies for ulcer and cancer, colectomy, choledochotomy, and an excision of the rectum for cancer.

The following operations may be described:—

Gastrectomy for cancer.—Mesial incision and rapid examination of the tumour with regard to operability.

(1) Separation of the great omentum from the transverse colon by a few touches of the knife. This exsanguine proceeding gives immediate access to the posterior gastric wall and facilitates separation of the stomach from the pancreas. The stripping up of the great omentum exposes the pancreas, leaves behind the colic vessels in the mesocolon, and takes with it any glands below the pylorus, permitting easy ligature of the pancreatic duodenal artery as the dissection is prolonged well to the right over the duodenum.

(2) Freeing of the upper surface of the duodenum and pylorus and ligature of the pyloric artery. Crushing and section of the duodenum on a Mayo's clamp and invagination of the duodenal stump. The stomach is now swung over to the left, a Doyen valve lifts up the liver, and the coronary artery is ligatured as near its origin as possible.

(3) Clearing of the lesser curve. This important step is done by placing a Kocher's forceps half an inch below the coronary ligature. With a knife the arterial pedicle is cut near the forceps, the incision passing right down to the serous coat of the stomach. Traction being made on the forceps with the flat of the knife the tissues are scratched downwards, the lesser curve thus being cleared of its serous coat, vessels, and glands down to the site of section of the stomach three, four, or five fingers-breadth from the tumour.

(4) Placing of a crushing clamp (De Martel's or Mayo's) on the stomach well above the growth and removal by the cautery of the whole diseased area with the glands in each omentum attached to it.

(5) Closure of the crushed gastric stump by a continuous parallel suture over the clamp. Posterior or anterior gastro-enterostomy, the jejunal loop being brought up through the mesocolon and the anastomosis being fixed in the mesocolic opening.

W. J. Mayo once wrote that an operation by Tuffier for removal of an adherent kidney by subcapsular

nephrectomy was in itself worth a visit to France. We felt the same might be said of Pauchet's gastrectomy for cancer. We saw him operate on several gastric cancers, and his rapid bloodless technique with its clearness of anatomical detail left the impression that gastrectomy was a comparatively simple proceeding. In his gastro-intestinal work Pauchet chiefly uses straight glovemaker's needles, though in certain places he changed to curved ones. In gastro-enterostomy he uses collargol catgut throughout, fearing gastro-jejunal ulcers from the use of unabsorbable threads; in gastrectomy the serous sutures were of fine linen. Unlike many French surgeons, Pauchet works in fine rubber gloves till the suture of the wall, when he changes quickly into the thick Chaput gloves. Anæsthesia was always spinal, paramedian and local if possible. In some cases these methods were satisfactory, in others ethylchloride or ether had to be used in addition.

Choledochotomy.—The patient, a fat male, was anæsthetised by spinal anæsthesia, and a long incision made parallel to the right costal margin, and about one inch from it. From the outer part of this incision another led vertically downwards, ending at or below the level of the umbilicus, and three or four inches external thereto. The exposure was admirable in an obviously difficult case. Under the liver the fundus of a shrivelled gall-bladder was barely visible in adhesions. Grasping it with Kocher's forceps the operator cleared the gall-bladder by knife dissection, chiefly from the stomach, in an attempt to define the cystic duct. This, however, proving impracticable, mobilisation of the duodenum was at once commenced by clean dissection with the knife. Gradually the common duct, obviously thickened, became visible. Incision was made into the duct between two Kocher's forceps, bile and biliary mud exuding.

The duct was sounded upwards and downwards with a curved steel urethral bougie, a calculus being struck far down in the duct. Manipulation of the stone pushed it upwards towards the incision, and on extraction it appeared the size of an olive. The duct was drained by a T-shaped tube, which fitted snugly into it; alongside the tube a couple of thin strips of gauze were left, to be removed gradually about the fourth day. The large wound was carefully sutured by thick catgut in the peritoneum and posterior sheath and in the anterior sheath; in addition here and there sutures of fishing gut were inserted. Michel's clips closed the skin.

During the operation, which was rapidly performed and conspicuously free from bleeding, only two intra-abdominal ligatures were placed, one on the round ligament of the liver, the other a single suture in the duct. When asked by a spectator why he left the gall-bladder, Plauchet replied that it was so shrivelled as to be no longer a gall-bladder; its removal was therefore unnecessary and only conducive to hæmorrhage, difficult to control in this case from the difficulty of access to the cystic duct.

Excision of a cancerous rectum.—The patient, a stout male, under spinal anæsthesia, was first placed on his back and a loop of the transverse colon fixed in the wall through an incision in the left rectus at the level of the umbilicus. This was done by slight omental separation, to define clearly the mesocolon on its upper surface, the bowel being slung up by a couple of fishing-gut sutures, passing through the mesocolon, each suture being tied on the skin, mattress fashion, on its own side. The bowel was to be opened 48 hours later. The patient was now turned on his face in the reverse Trendelenburg position, the buttocks being so raised that operator and assistant had to stand on small stools. The anus was closed by a silk suture and the anal canal dissected till about 3 inches were displayed. An incision was then made in the middle line over the sacrum and coccyx, stopping short of the perianal incision. The coccyx was removed and from the space thus left a pair of forceps was passed downwards and gripped the anal ligature. Traction on the ligature drew up the dissected anal canal into the space left by removal of the coccyx and careful dissection of the bowel from the prostate was begun, the gland soon showing bare at the bottom of the wound. Freed from the prostate, the bowel was rapidly detached with the perirectal fat from the sacral hollow; the peritoneum was opened and the lateral vessels on the rectum secured. A ligature was then placed round the bowel well above the growth, which was cut away, and the bowel was brought down and stitched to the skin at the anus. To avoid tension some lateral stitches fixed it to the sides of the cavity into which a couple of drainage-tubes and a mesh of gauze were placed, the large wound being reduced by a few separate fishing gut sutures. The anæsthesia of this operation was complete and its performance was marked by the absence of bleeding.

De Martel's Inventions and Methods.

T. De Martel had a list of over two dozen cases for operation, including craniectomies, laminectomies, abdominal and rectal surgery. His book on "Injuries of the Skull," published in the Horizon series, has already been translated into English. De Martel is the inventor of a craniotome and an ingenious crushing clamp for the stomach. In one morning he performed two appendicectomies, resection of a cancerous breast, removal of an ovarian cyst, gastrectomy for cancer, and craniectomy as a decompression operation.

In appendicectomy he simply ligatures the appendix stump after cutting it through with the cautery and drops it back into the abdomen without invagination. In a case of cholecystectomy in a very fat woman, he used Perthe's incision, removing the enlarged gall-bladder rapidly from below upwards. A rubber drain was placed near the stump of the cystic duct, but not fastened to it. Beside the drain a couple of gauze meshes were put in and the wall closed by one layer of through-and-through sutures of aluminium-bronze wire, a method of suture which in a case like this seemed very insufficient to some of the onlookers. In a case of duodenal ulcer he performed exclusion of the pylorus by cutting across the pyloric antrum. Each end of the gastric section was closed and posterior gastro-enterostomy performed on the upper end. De Martel's craniectomies are anæsthetised by about 5 ounces of ether in oil per rectum, then local anæsthesia by novocaine and adrenalin is used in a very thorough way. The condition of a patient two days after a decompression operation was most satisfactory.

In a case of supposed tumour of the spinal cord a physician first gave a brief history of the case, De Martel also making some remarks on the diagnosis. Laminectomy was performed under ether anæsthesia, but no tumour or collection of liquid was found and the wound was closed, De Martel remarking that the condition must have been an intraspinal lesion. At the close of this operation a girl of 22 walked into the theatre before her less fortunate companion had been wheeled out. She had had laminectomy performed two months previously for a tumour in the spinal canal, and she was obviously in a very satisfactory condition, all paralysis having disappeared.

De Martel has recently published his results in 20 cases of tumours of the cord and its membranes, and in this interesting report the details of technique are fully given.[1] Pauchet and De Martel both speak English, so that English-speaking surgeons can always get information on any point.

Anastomosis by Pierre Duval.

Professor Pierre Duval, operating at the Lariboisière Hospital, performed a choledochotomy, an operation for gastric ulcer, and one for intestinal stasis caused by adhesions.

1. *Choledochotomy.*—Duval explained that the patient, a female, suffered from obstructive jaundice, and that the provisional diagnosis was stone in the common duct. The incision was of the Mayo Robson type; the gall-bladder being cleared of adhesions, cholecystectomy was performed from below upwards. The stone, occupying the junction of the cystic and common ducts, was about 1½ in. long, and was quickly removed. Drainage of the duct was by a soft catheter with a mesh of gauze placed beside it; suture of the wall was

[1] Bulletins et Mémoires de la Société de Chirurgie, Paris, vol. xlv. No. 2, pp. 511 to 521.

in two layers. At the close of this operation Duval handed round the most curious radiogram of biliary calculi by Beclerc the present writer has ever seen; four to five stones were perfectly visible in the gall-bladder, and lower down and inwards others could be seen in the track of the common duct.

2. *Ulcer of the lesser curve.*—Duval said that a radiogram showed an ulcer in this position and that he intended doing Balfour's cautery operation. A median incision was followed by omental colic separation and exploration of the posterior surface of the stomach showing the ulcer adherent to the liver and pancreas. On attempting mobilisation of the lesser curve the ulcer tore; Duval therefore desisted from further attempts at separation from the liver, and with the cautery simply seared the edges of the large resulting gap. Suture of the gap by some separate catgut sutures with a Reverdin needle was followed by a layer of serous sutures burying the first. He then performed posterior gastro-enterostomy without clamps, and when asked by a spectator what direction he gave to the jejunal loop he replied that it did not matter, as the essential for a successful gastro-enterostomy was a large anastomosis at the lowest part of the stomach near the pylorus. The opening did not appear to be more than one and a half inches long. At the end of the operation Duval explained that he had not wholly done Balfour's operation, which was obvious.

3. *Intestinal anastomosis for post-operative adhesions.*—The patient had a long vertical scar in the left flank, the result of some previous operations. Loops of large bowel were found matted together in the left iliac fossa. The adhesions were separated as far as possible, and as some angulation persisted between the separated loops, Duval performed anastomosis between two loops. He did not use clamps, and sutured the bowel with a fine Reverdin needle, cleaning the cut surface with swabs soaked in ether. He explained that he used this needle even for gastro-intestinal sutures as he was so accustomed to its use. Though a useful instrument in sutures elsewhere, this needle obviously makes a larger hole in the tissues and cannot be manipulated any faster than a straight or conveniently curved intestinal needle used by the fingers.

In connexion with the Congress an interesting exhibition of surgical and electrical instruments was arranged in the hall of the Faculty of Medicine.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Council of the Irish Medical Association.

A QUARTERLY meeting of the Irish Medical Association was held in the Royal College of Surgeons, Dublin, on Jan. 14th, Dr. J. Marshall Day, the President, in the chair. Correspondence was read between the secretary of the Association and the Chief Secretary for Ireland dealing with the difficulties arising out of the Motor Permits Order. The Association had asked for some special consideration in the case of drivers employed by medical men, but the Chief Secretary declined to grant the request. The following resolution was passed unanimously:—

"The present position regarding the Motor Permits Order seriously interferes with the attendance on sick persons throughout Ireland. The Council of the Irish Medical Association believes that the object of the Order would be best met by a photograph of the driver being affixed to his licence, and requests the Government to adopt this course."

This is the suggestion which has already been put before the authorities by the Traffic Controller for Ireland. A discussion followed concerning the inadequacy of the fees at present paid for examinations for life assurance, and the following resolution was passed:—

"That the scale of fees for examinations for life assurance shall be as follows: Proposals for £100 and under £500, £1 1s.; £500 and over, £2 2s."

The Council discussed the inadequacy of the remuneration given for attendance on the officers and men of the Royal Irish Constabulary, and a deputation was appointed to wait on the authorities to ask for a reconsideration of the present scale of payments and conditions of service. Discussions took place concerning the working of the Reorganisation Committee and the Irish Public Health Council.

The Royal Academy of Medicine in Ireland and the "Dublin Journal of Medical Science."

The Council of the Royal Academy of Medicine in Ireland has recently acquired the goodwill of the *Dublin Journal of Medical Science* and has decided to make it in future the means of publishing the Transactions of the Academy. Since the formation of the Academy of Medicine in 1882 it has, until 1917, published its Transactions in an annual volume. Since 1917 no issue has appeared. The *Dublin Journal* has a long history. It has reached its 149th volume, and the current issue is No. 576 of the Third Series. With the issue for March it will commence its Fourth Series under its new auspices. The present editor, Sir John W. Moore, has had charge of the journal for nearly 50 years, and much credit is due to him for the high literary standard maintained by the journal and for the determination which has kept it alive through many difficulties. The Council of the Academy has decided to offer the editorship of the journal, when it comes into their hands, to Mr. Arnold K. Henry, F.R.C.S.I.

The Belfast City Council.

At the time before the recent municipal elections there were three medical representatives in the Belfast City Council. Of these, one did not again come forward, and of the other two candidates only one, Dr. J. D. Williamson, was elected.

Jan. 19th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENT.)

Improving the Indian Medical Service.

CERTAIN proposals of the Government of India were sent home some time ago, although the report of the Medical Services Committee has not yet been finally considered. One of the principal grievances of the officers of the service, as is well known, is the difficulty and uncertainty of obtaining leave or furlough home. It is high time that steps were taken to remedy this grievance, not merely from the paramount necessity of relieving the hardships of a class of officers who have rendered splendid service to Empire, but also from the urgency of the problem presented by the difficulty of recruitment. Since August, 1914, the total number of I.M.S. officers has steadily declined from 775 to 732. On the civil side there are now just over 200 officers on duty as against 507 before the war. There were nearly 200 permanent I.M.S. officers employed overseas, principally in Mesopotamia and Egypt, whose services cannot yet be spared by the military authorities. Now, as has already been stated, the total number of I.M.S. officers is less than the total sanctioned pre-war strength plus the 23½ per cent. study and leave reserve. Quite apart from the increase of this reserve, which, it is anticipated, will be among the contemplated improvements, the military requirements of India, due to revised scale of treatment and to the inclusion of the treatment of departmental followers in Indian station hospitals, will necessitate an increased cadre. Leaving out of consideration the 200 officers now serving overseas, some 150 officers are necessary to make up the shortage. It is plain that if the hundred or so European doctors required by recruitment formula—"two Europeans and one Indian"—are to be found, the attractions of the Indian Medical Service must be greatly increased.

Esher Committee on the Indian Military Services.

Commenting on the work before the commission the leading Indian journal says: "We trust that the committee will give the widest possible interpretation of its instructions; for it is high time that the whole military

condition in India was reviewed in the light of the requirements of modern warfare and the calls likely to be made on India in the not distant future to bear her share in the carrying out of a general scheme of Imperial Defence. Is the health and comfort of the soldier looked after as it should be? Are military cantonments and hospitals models of their kind? Is electricity in general use in our military barracks and are water pipes laid down in every large cantonment? Has the motor lorry everywhere replaced the bullock-cart and made mobile columns really mobile? The plea that funds are not available cannot be allowed any longer to stand; we must find the funds to make our army really efficient, even if we have to revise all our ideas as to what is necessary and unnecessary from a military point of view. And here the Esher Committee, if it will but devote itself to discovering a solution to this problem, will confer a real benefit on the Government, army, and people of India."

Anti-plague Measures in Secunderabad.

The laying of the foundation-stone of a rat-proof grain market took place a few days ago in Secunderabad. This is one of the effective measures adopted by local administration to combat plague. The building will cost Rs.1¼ lakhs (£12,000), and will include 27 store-rooms in addition to a handsome façade to be occupied by cloth shops; its location in the centre of the town, close to the general market, will render it convenient in every way to the public and also to the merchants.

Cholera near Calcutta.

A virulent type of cholera is reported to have broken out at the coolie depôt near Calcutta. Four or five cases are being reported daily, and some have proved fatal.

Public Health in Calcutta.

The Governor in Council has decided that the time is ripe for a thorough investigation into the existing organisation of the Public Health Department of the Presidency of Bengal. He desires that the organisation should be examined and that proposals should be made with a view to rendering it adequate to discharge the expanding functions which in the near future must inevitably be assigned to it. The Government has accordingly decided to appoint a committee, consisting of the following gentlemen, to advise upon the whole subject, viz.:—Hon. Mr. C. F. Payne, I.C.S., chairman; Dr. C. A. Bentley, M.B.; Sir L. Rogers, Kt., I.M.S.; Sir Nilratan Sarkar, Kt., M.D.; Nawab Khwaja; His Excellency in Council Muhammad Yusuf Khan Bahadur Rai; Jadu Nath Mazundar Bahadur; Dr. J. W. Tomb; and Mr. S. W. Goode, I.C.S., as whole-time secretary. The Committee has been given broad terms of reference, and it is hoped that a comprehensive scheme will be drawn up.

The Health of Baghdad.

Baghdad is, I learn, at present free from any form of serious disease. Influenza certainly is running its course through the town, but it is not of the dangerous nature from which so many suffered last year. The Civil Hospital is making steady progress, and is daily becoming more and more popular with the population. The ophthalmic section, in particular, is doing valuable work, and in consequence of the results which are effected many Arabs who have previously carefully avoided the "nakim" are bringing their children for treatment. The dental section, which has recently started, has already attained a remarkable degree of popularity.

DEATH OF MR. S. RYAN.—Mr. Simon Ryan, who died suddenly at his residence, Ecclesall-road, Sheffield, on Jan. 5th, received his early medical education at Queen's College, Belfast, and gained the Malcolm exhibition at the Royal Hospital, Belfast, in 1886. Later he went to Edinburgh University, and qualified in 1889 with the Scottish triple qualification, obtaining the Fellowship of the Royal College of Surgeons, Edinburgh, in 1903. Mr. Ryan, who had practised in Sheffield for some 30 years, was 61 years of age, and leaves a widow and two sons, one of whom qualified in 1914 and has assisted his father in practice.

Correspondence.

"Audi alteram partem."

THE PREVENTION OF VENEREAL DISEASE.

To the Editor of THE LANCET.

SIR,—The statement of the general secretary of the National Council for Combating Venereal Diseases, published in THE LANCET of Jan. 17th, indicates clearly that the Council is not even now, after so much severe criticism, aware of the actual situation. Between it and the Society for the Prevention of Venereal Disease there is more than a mere difference of opinion as to the best means of controlling venereal disease. Rightly or wrongly, a belief has arisen in many minds that the Council is either very blind to plain evidence, or else is not sincere in the desire, which apparently it now professes, to prevent the spread of venereal disease by any and every means which would be applicable to any other infectious malady. It is necessary to use plain words, for, if the belief be founded on error, then the more plainly it is expressed the more easily it can be rebutted. It is this suspicion which is the controlling factor. It led more than anything else to the foundation of the S.P.V.D. The Council professedly bases its activities on the findings of the Royal Commission of 1913, the Inter-Departmental Committee of 1919, and on Lord Sandhurst's statements in the House of Lords in November last. But surely it is aware of the deep distrust which all these inspired.

The history of the Royal Commission is well known. Seven years before it began its labours two great discoveries had been announced—Ehrlich's discovery of salvarsan and Metchnikoff's discovery that syphilis could be aborted by the early inunction of calomel. The proceedings and Report of the Royal Commission are full of allusions to salvarsan. At the time the Commission completed its labours (1916) 20,000,000 fighting men were being protected by Metchnikoff's discovery, yet during the whole of the proceedings not one question was asked concerning it in its application to man, and in the Report it is alluded to in only a single sentence, which is not even indexed. Some of the medical members of the Commission desired to give prominence to it, but were unable to carry their point.

The Royal Commission expressed the opinion, chiefly on the authority of the late Sir William Osler, that syphilis ranked as about the fourth killing disease, and that about 10 per cent. of the inhabitants of the great towns were actually suffering from it—i.e., about 3,000,000 people in the United Kingdom. Gonorrhœa is five or six times as common. It would appear, therefore, that about every other person, certainly at least every other male, has suffered from venereal disease. For the mitigation of this enormous pestilence the Royal Commission recommended preaching to adults and an extension of treatment by means of salvarsan. In express terms it handed the good work to the National Council. "When we drew up the regulations of the Society (i.e., Council) care was taken to avoid suggesting that means should be taken to prevent infection." But was ever a pestilence stayed by preaching and treatment? Moral lectures given to adults are confessedly futile. Fear of disease does not prevent incontinence, even among medical students, who know so much. An attempt to stay a plague of such dimensions by treating the sick is like trying to empty the Atlantic with a teacup.

The raising of the new armies for the war was accompanied by a vast outbreak of venereal disease among them. We heard little of this epidemic because allusion to it was suppressed for fear of the effect on recruiting, but at one time the Colonial Governments threatened to withdraw their forces unless means were taken to protect them, and in every dominion the main election cry of those who opposed assistance to the mother country was that the young men should not be sent to this cesspool—England. As a consequence, early in 1916—about the time the Royal Commission was

issuing its report—the Government was forced to take measures to protect the troops. It is understood that some sort of arrangement was made with "influential people" who opposed "any system of prophylaxis which might be said to afford opportunities for unrestrained vice." Therefore the Government did not supply the troops with "packets" with which they could disinfect themselves immediately after exposure; it established instead "venereal ablution rooms," in which were pails of permanganate lotion and pots of calomel ointment. The men could not disinfect immediately; they had to return to barracks first.

The surgical fevers—septicæmia, gangrene, tetanus, and the rest—are contagious diseases. Every surgeon is of the opinion that whoever delays disinfection for their prevention is a lunatic or a criminal. The venereal diseases are also contagious diseases. They differ from the surgical fevers in that the pathogenic organisms are of exceptional delicacy, in that the time and place of infection may almost always be anticipated, and in that the male organ is so shaped and situated that it is easily disinfected by the individual himself.

Before the war the 1st Battalion Yorkshire Regiment was ordered to Delhi, a hot-bed of venereal disease. The M.O. advised his men to swab themselves immediately after exposure with a solution of permanganate. In four years he saw only six cases of venereal disease, a rate of 1·5 per 1000 per annum. At Mhow venereal disease was reduced to "negligible proportions" by the same means. At Portsmouth an M.O. who had charge of 2000 troops for 28 months also achieved a venereal rate of 1·5. The method spread in the area, and many other M.O.'s obtained similar results. At the local venereal diseases hospital it was found that not one man who had disinfected himself immediately had acquired disease. At Whale Island, the Naval Gunnery School, Surgeon-Commander P. H. Boyden gave bottles of permanganate solution to 496 men, none of whom acquired disease except one who delayed disinfection six hours after exposure. Among the Royal Marine Artillery, who were also taught to disinfect quickly, there were five infections in nine months among nearly 4000 men—a rate approximately of 1·5 per 1000 per annum. Generally speaking, this rate appears to be the normal for troops carefully instructed to practise quick disinfection. Many more instances could be given, but only those which can be exactly verified from official records are quoted.

In 1918 the Government, impressed by the evidence, ordered the provision of prophylactic packets. Protests were immediately raised by those who desired quick disinfection. It was pointed out that it was not "packets," but instruction, that the troops needed. They had disinfectants in abundance. However, whoever was now in charge of the arrangements for preventing disease persisted. After prolonged delay the packets arrived with instructions that they were to be used in the old inefficient way, with delay. Protests were again raised, but were again unheeded. If any officer or man who served during the war be questioned, it will be found in 99 cases out of 100 that he received no instructions whatever. It seemed to the medical officers who were achieving almost perfect results by means of careful instruction and quick disinfection, that someone in authority was inefficient, or else was not desirous of the success of quick disinfection. Meanwhile they had no choice but to persevere and hope that their example would bear fruit later. In the army taken as a whole the venereal rate remained at about 40 per 1000 per annum.

After the end of the war an Inter-Departmental Committee considered the question of the prevention of venereal disease among the civil population, and founded its conclusions mainly on imperfect and ill-considered statistics supplied from the army. Not only did these statistics record the results of incompetent administration, but from the whole results only those were selected which would serve to make the case for quick disinfection appear worst. For example, the high rate of venereal disease among the Australians is mentioned, but nothing is said as to the shocking carelessness of the Administration, nor of the splendid results achieved when care was taken, as, for instance, by Colonel Elgood at Port Said. No stronger condemnation of the administration in the British Army could be penned than this statement of the Inter-Departmental Committee itself: "The returns from individual units appear to show that a reduction is effected only when the medical officer takes a very special interest in the subject and neglects no opportunity of impressing the importance of prompt disinfection on the men under his charge." *Think of this being written of enteric fever or any other disease which was enormously reducing the strength and efficiency of the forces.*

It is not necessary, however, to deal with the Inter-Departmental Committee at length, except to say that indignation at its proceedings led directly to the foundation of the Society for the Prevention of Venereal Disease. It is sufficient to consider the statements of Lord Sandhurst, whose figures are of the same character and derived from the same source as those of the Inter-Departmental Committee. Lord Willoughby de Broke asked for information concerning the Portsmouth area—the area administered by the Assistant Director of Medical Services at Portsmouth—in which careful teaching and quick disinfection had been practised. He wanted to learn about the effects of this quick disinfection, and his object was perfectly understood, if not by Lord Sandhurst, at any rate by the person who supplied him with his figures. Besides the disease contracted by troops resident in the area, much was brought into it during 1919 by drafts, and whole units from elsewhere. Within the area, too, but not in the care of the A.D.M.S., were large bodies of Americans, Colonials, and R.A.F., all of whom had an exceptionally high rate of infection. Lord Sandhurst lumped together all the disease occurring in or imported into the area—which is absolutely the model area for the whole kingdom—and declared that it was two and a half times as high as for the rest of the kingdom. He was immediately called to account, but the Council continues to quote his statements as trustworthy. The remarkable thing is that Lord Sandhurst's arguments make the case even more deadly against the Council than the actual facts. According to him the venereal rate in the Portsmouth area is about 100 per 1000 per annum. In Portsmouth itself, the only large town in the area, it should be therefore about 150 per 1000 per annum. But among 7000 troops in that town it was reduced to 1·5 per 1000 per annum by quick disinfection and careful teaching. Could anything be more decisive? All that is in this letter and much more has been brought to the attention of the National Council, which still seems to think that the mere opinions of the Royal Commission, the Inter-Departmental Committee, and Lord Sandhurst require only simple quotation, not justification.

We wish to add that, as far as we know, there is no warrant or justification for the secretary of the N.C.C.V.D.'s statement that "the S.P.V.D. consider that immediate self-disinfection is the only measure worthy of consideration," &c., and that the claim made by the N.C.C.V.D. for being the only representatives of those who have had intimate experience of the problems involved in the successful *prevention* of venereal disease is clearly unfounded. For that body is mainly composed of those who have had no experience of immediate disinfection, and have persistently discouraged all trials of it. We are, Sirs, yours faithfully,

H. BRYAN DONKIN.
Jan. 19th, 1920. G. ARCHDALL REID.

THE CAUSATION AND PATHOLOGY OF DIVERTICULITIS.

To the Editor of THE LANCET.

SIR,—In reference to the recent discussion on diverticulitis I think it of interest to point out that I described the diverticula and demonstrated their causation in a paper entitled "The Pathology of Extravasation of Urine" in Guy's Hospital Reports in 1885. The paper was written with the object of showing that the universally accepted theory of the causation of extravasation which was put forward by the then great authority on the subject was absolutely false.

The following was extracted from an article written by Sir Henry Thompson in Holmes's "System of Surgery."

"Extravasation of urine takes place during unrelieved retention by the giving way of the urethra at some point. It is very rare indeed that the bladder itself is ruptured. In either case, however, mechanical distension is not the direct or only cause. Ulceration of the mucous membrane behind the stricture leads to a breach of the urethral walls. The bladder contracting drives the urine with great force into the cellular tissue around, so that it soon reaches the superficial fascia of the scrotum, abdomen, &c."

I do not intend to go into this question in detail here except to state that extravasation results not from any giving way of the wall of an ulcerated urethra, but from the rupture of a periurethral abscess that had burst into the urethra behind the stricture. I was able to demonstrate the truth of this beyond any doubt, as we had at that time a large mortality from extravasation, most of the patients having had a Cock's operation performed on them.

The study of extravasation led me to that of sacculi of the urethra, prostate, bladder, and intestine, and also of aneurysms.

The case of diverticulitis to which I wish especially to call attention illustrates so clearly the manner in which diverticula are formed in the bowel that it requires no further comment from me. The following is an extract from my report on the pathology of the patient's intestine:—

"On opening the sac of the large acquired hernia on the left side, a piece of omentum was found attached to its lowest point. Its upper extremity was free, and presented a cicatricial contraction. Lying on the neck of the sac and adherent to it was the end of a piece of omentum which presented a cicatrix corresponding to that of the lower piece. Occupying the sac was a single loop of large intestine, which with its mesentery was loaded with fat. It was adherent near its neck and posteriorly. The loop of gut measured nearly a foot in length. On laying it open that end which was on the abdominal side of the internal ring was seen to be much dilated, while the proximal end of the loop was very narrow, and presented a double row of sacculi separated by a prominent ridge formed by the band of longitudinal muscle fibres. The

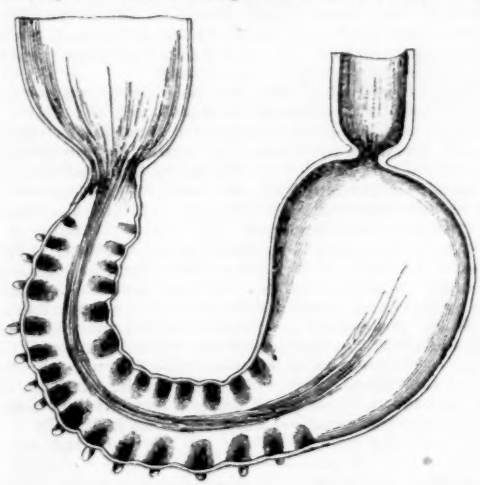

figure shows the loop laid open and the gut continuous with either end of the loop. Also the lower row of diverticula, from which the appendices epiploicæ have been removed. Though the diverticula were placed in the appendices epiploicæ their position there was apparently accidental, for the reason that the diverticula, like the appendices, were only seated in the intervals between the longitudinal bands. At the bottom of most of the depressions were small circular openings leading into dilated processes of the mucous membrane covered by a thin layer of the mucous coat. In many of these sacculi the muscle covering appeared to be absent; in character they resembled the diverticula seen in the bladder. The distal half of the loop increased gradually in calibre, losing its sacculated appearance, the prominent ridge of longitudinal fibres becoming indistinct, and then disappearing in the distal extremity of the loop, which was very much dilated. The piece of gut continuous with this in the abdomen opened into the dilated end by a very small constricted orifice, resembling in appearance the œsophageal opening into the stomach. This part of the intestine was contracted and was not unlike the œsophagus, its walls being thick, its calibre small, and its mucous membrane arranged in close longitudinal folds. The contraction of the proximal half of the loop in a transverse and longitudinal direction had resulted in the formation of the prominent longitudinal ridges and the formation of the sacculated appearance. The diverticula of the mucous membrane were evidently produced in the same way, as were the corresponding diverticula in the bladder—namely, by the vigorous contraction of this portion of the loop on its contents, forcing them into the distal half, which on that account became enormously dilated. The very small size of the orifice of communication with gut in the abdomen and its position formed a considerable and a progressively increasing obstacle to the passage of fæces into it."

This man had also a very tight stricture of the urethra, and his hypertrophied bladder presented a large number of diverticula varying in size from a depression to a sacculus as large as a walnut. Many of these vesical diverticula were simply pouches of mucous membrane which projected through the muscle wall, while in others there was a distinct coating of muscle fibre. The fat which was so abundantly present seemed to favour the formation of these herniæ. It is clear from a consideration of the above that the two factors in the development of diverticula are tension and fat, the infection being a natural sequence of stagnation of the contents of the diverticula.

I am, Sir, yours faithfully,

Jan. 18th, 1920. W. ARBUTHNOT LANE.

THE JUSTIFIABILITY OF THERAPEUTIC LYING.

To the Editor of THE LANCET.

SIR,—We have read Dr. C. S. Myers's and Dr. I. G. Cobb's criticism of Dr. Hildred Carlill's treatment of the boy with hysterical sleeping attacks reported in THE LANCET of Dec. 20th, 1919. We both saw the boy several times, and we wish to emphasise the fact that every effort was made to find an underlying cause for his mental state, but without success. It was only after all these measures had been tried and had failed, that Dr. Carlill decided to resort to the procedure which has raised such adverse criticism.

We are convinced that in his conduct of the case Dr. Carlill was actuated solely by the desire to benefit a patient who, as long as he remained uncured, was in danger of meeting an untimely end.

We are, Sir, yours faithfully,

E. A. COCKAYNE.

Jan. 20th, 1920. GEORGE E. S. WARD.

THE PRIVACY OF VENEREAL CLINICS.

To the Editor of THE LANCET.

SIR,—With reference to your article "The Privacy of Venereal Clinics," and to other comments which have appeared on Mr. Justice McCardie's ruling as to the giving of evidence by a medical officer of a venereal clinic in regard to a patient who had been treated there, is not the essential feature of the case the fact that it was the patient who called the medical officer to give evidence that she herself had been treated for venereal disease? If this is so, the ruling surely involves no breach of the principle regarding secrecy that is guaranteed at venereal clinics, nor should it tend to destroy the trust of the public in venereal clinics. If medical officers were not allowed to give evidence in such cases it would restrict, to the detriment of the patients, the usefulness of such institutions.

The correctness of the above attitude may perhaps be made more apparent if one considers an analogous case. Imagine that a person had been seen to attend a venereal clinic and was wrongfully accused of having been treated for venereal disease. If such a person were not permitted to avail himself of the evidence of the medical officer of the clinic he would be inferentially placed in a very unfavourable position. A very different principle would be involved if a medical officer were

called upon to give evidence by one party that another party had been treated for venereal disease; this, of course, would be a gross breach of professional etiquette, and I imagine that in such a case a medical officer would absolutely refuse, at whatever cost, to consent to what would not only be an infringement of the rules of venereal clinics, but a breach of the honourable traditions of his profession.

I am, Sir, yours faithfully,

A. MEARNS FRASER,
Portsmouth, Jan. 18th, 1920. Medical Officer of Health.

*** Certain daily papers missed the significance of the fact, mentioned in our columns and emphasised by Dr. Mearns Fraser, that the petitioner herself obtained the medical evidence.—ED. L.

THE MEDICAL MAN'S INCOME-TAX.

To the Editor of THE LANCET.

SIR,—In THE LANCET for Oct. 19th, 1918, there appeared an article by Mr. John Burns, W.S., entitled "The Medical Man's Income-tax." It is the most comprehensive and explicit paper on the subject that has appeared in my knowledge, and should be at every medical man's elbow when he makes out his annual return.

Among the abatements cited was one that particularly interested me. In a paragraph under "*War Work*" it was stated that the benefit of the reduced rate of tax, *on the pay only*, is available to all who, in the tax year in question, have served in service of a naval or military character in connexion with the war, for which payment is made out of money provided by Parliament. Having served throughout the war as medical officer in sole charge of a military hospital here, the pay for which appointment was of the nature of consolidated pay, and coming by monthly cheque from Eastern Command Headquarters, it appeared to me that I was, under this regulation, entitled to the service rate on this pay. I accordingly made claim to the reduction by appealing in the first instance to the local surveyor of taxes. That official replied (Oct. 21st, 1918) that he had to inform me that the special rates applicable to army and navy pay are only allowed in the case of men actually on active military or naval service. "The fees received by you are assessable at the ordinary rates of tax." This reply was in such flat contradiction to Mr. Burns's statement, made evidently with complete knowledge of the case, that I lodged a formal protest with the surveyor while I inquired further into the matter.

Through the courtesy of the Editor of THE LANCET I got into communication with Mr. Burns. I pointed out to him the discrepancy between the statements in his article and the dictum of the local surveyor, giving him details of the conditions under which I held the appointment. For the zest with which that gentleman leaped into the conflict which ensued for the next six months with the various Government departments concerned I cannot sufficiently express my admiration and thanks. I doubt not there are a large number of medical men entitled to the same relief as myself. It is with the hope that they will at once put in their claims and be as successful as myself that I am writing this communication. But I hope that they will not forget that they will owe their success entirely to the pertinacity and technical knowledge which Mr. Burns freely gave for the medical profession.

The whole correspondence makes quite interesting reading, but as it would fill many pages of your journal, the course of it can only be indicated. A fight with a Government department is as good a game as Rugby, if you know how to play it. But it is a game only experts can play at. As soon as one department is in danger of being tackled the ball is "passed," and the game kept going in the hope that the opposer will tire. But Mr. Burns proved himself a master at the game. The way in which he stuck to the man with the ball and finally brought him down was delightful to me, the onlooker.

The first move was a letter to the Chancellor of the Exchequer fully setting out my case. The reply was a brief note, not from the Chancellor, but from Somerset House, that the Board of Inland Revenue do not regard "temporary civilian doctors employed at war hospitals" as falling under the War Service Relief. Mr. Burns rejoined that he wrote not to the Board of Inland Revenue but to the Chancellor of the Exchequer. He pointed this out to the Board, and again wrote to the Chancellor requesting him to give the matter his personal consideration (3/12/18). On Dec. 30th Mr. Burns writes, "I have at last got the Chancellor of the Exchequer to write upon the subject, although not very fully. I infer that his sympathies are with you, but he treats it as primarily a matter for the War Office. In that I think he is wrong, and I am saying so. I am, however, writing to the War Office, and I am sending a copy of that letter to the Chancellor." There followed (Dec. 30th, 1918) a long and closely reasoned letter to the War Office, in which the whole case was again set out, as being really representative of that of the profession. Pending a reply to this Mr. Burns drafted a series of questions to be put as soon as Parliament assembled to the departments concerned, asking, among other things, if the Treasury would provide funds for a test case being brought to the High Courts. These were kindly put by Sir W. Watson Cheyne soon after Parliament met, but the answers were non-committal.

The grounds of controversy gradually narrowed to a simple issue. The statute gave privileges to two classes of persons: (1) Those actually serving in the naval or military forces of the Crown; and (2) persons engaged in service of a naval or military character in connexion with the war. In refusing to acknowledge that my work was "service of a naval or military character," it was a fair question to ask for the official view as to what constitutes such service when rendered by one who was *not* a member of the military forces of the Crown. In a letter (War Office, Feb. 7th, 1919), for the first time, the official view was forthcoming. The instance given was "mine-sweeping." This was at once seized on by Mr. Burns as "singularly unhappy," for those engaged in mine-sweeping are separately covered by the same enactment as being for "three months master or member of the crew of any ship or fishing boat." *Ergo*, whatever class (2) means, it cannot mean *that*. Again, in the same letter the War Office postulates "active service," thus, as Mr. Burns points out, putting a gloss upon the statute, making an amendment rather than an interpretation of the statute.

Finally (April 24th, 1919) the War Office regrets that "it is not in a position to assist you further." It proceeds that the proper course for your client to adopt, should he wish to pursue his claim to the reduced service rate of tax, is to appeal to the District Commissioners of Income Tax, the authority appointed by law for the purpose. Accordingly I put in an appeal to the District Commissioners. I was not required to appear before them, the appeal being allowed. I have to-day received a draft for the amount—i.e., the difference between the service rate and the ordinary rate on the three years income from the appointment.

I think there may be many medical men similarly circumstanced to myself affected by this decision. One of my colleagues in this town, who through the war served as medical officer of health to the garrison, and also in medical charge of troops, has already had a similar claim allowed.—I am, Sir, yours faithfully,

Felixstowe, Jan. 17th, 1920. C. G. HAVELL.

BRITISH MANUFACTURE OF INSTRUMENTS OF PRECISION:

A PERTINENT QUESTION.

To the Editor of THE LANCET.

SIR,—May I call the attention of the medical profession to what, in my view, is an undesirable condition of affairs in these days when, as we are led to believe, every effort is being made to capture trade in instruments of precision. Many years ago I obtained from the firm of Carl Zeiss and Co. some hand spectroscopes, on the Browning model. These were, as they should be, furnished with a *wave-length* scale which was most admirably adjusted, and enabled the observer at once to read off the position of any absorption bands seen in

the spectrum of the object examined. These spectroscopes having been stolen I was forced to obtain some of British manufacture, and to my great regret found that the old and unscientific, because purely arbitrary, scale was affixed to them. Doubtless it is true that by dint of great pains one can manage to construct a wave-length scale curve to coincide with this old scale; but even then one has perforce to refer to the curve at each observation, which causes a loss of time and, too often, a regrettable expenditure of language.

Is it not possible for our British makers of spectroscopes—even the most eminent of them—to take a leaf out of the book of Zeiss and make *modern* instruments?

I am Sir, yours faithfully,

Calcutta, Dec. 18th, 1919. W. D. SUTHERLAND, M.D.

THE NEED OF OPHTHALMIC PHYSICIANS FOR THE ADVANCEMENT OF OPHTHALMOLOGY.

To the Editor of THE LANCET.

SIR,—My paper on the Need of Ophthalmic Physicians for the Advancement of Ophthalmology[1] was read before the Section of Ophthalmology of the Royal Society of Medicine on Nov. 5th last, and adjourned for discussion to the next meeting, Dec. 3rd. The Section asked that the paper should be printed and circulated. This, however, was subsequently vetoed by the Council on its own responsibility. Recognising the many difficulties which were involved in the change of system advocated in my paper, I had prepared a resolution referring the subject to the Council of the Section for consideration and report, and had given notice to the secretary of the Section a week in advance. At the meeting, however, Mr. Holmes Spicer, the President, informed me that he would rule my motion out of order as it did not concern the affairs of the Section, giving me no time to remodel my motion so as to bring it into line with his ruling or to find a seconder to it.

I venture to protest against that ruling, which appears to me against the interests both of the Section of Ophthalmology and of the Royal Society of Medicine. Surely any subject which the *Section* has power to discuss must be one that its *Council* has power to discuss. The Council has never, to my knowledge, been accustomed to take such a narrow view of its powers, but has included all subjects relating to ophthalmology. And again, if the Royal Society of Medicine has no power to discuss such a subject, where can it be discussed? But, quite apart from the general principle, I hold that the ruling is in opposition to the true interests of the Section, the success of whose meetings depends upon the adequate discussion of the subjects brought before it. Quite a large proportion of the papers and cases brought before the Section are on *medical* subjects, read by ophthalmic surgeons to ophthalmic surgeons. Physicians practically do not attend our Section, and if they did they are not familiar with the ophthalmic point of view. Thus these papers have no chance of enlightened discussion, for what surgeon is going to criticise another surgeon's *medical* opinion? The discussions are therefore shorn of much of their medical interest. Thus, in the interests of the Section I hold it is of vital importance that the physician should be brought into closer touch with ophthalmology, and that it is the duty of the Council to consider what steps should be taken to this end. My suggestion of the appointment of physicians (other than consulting physicians) on the acting staff of ophthalmic hospitals may not be the best remedy. It is open to the Council to suggest a better.

At the last meeting of the Section the President appealed to members for papers, stating that the secretaries had none in hand—clear evidence that all is not well with the Section. For there is a wide field for ophthalmic research, totally unexplored by the physician and only superficially cultivated by the surgeon, which would yield an abundant harvest. The gradual exclusion of the physician from our Section is also shown by the fact that both our secretaries are surgeons. In the mother society—the Ophthalmological—physicians took a large and active part in its formation and management, and up to a few years ago one of the secretaries was always a physician. On all these grounds I consider the position of the physician in relation to ophthalmology to be one which is not only of importance to our science, but of vital interest to the Section of Ophthalmology of the Royal Society of Medicine. For the Council to endeavour to burke the question is a dereliction of its duties.

I append a list of the medical subjects brought before our Section since 1912. It will be noted that four only were introduced by physicians, and in four other cases physicians took part in the discussion.

I am, Sir, yours faithfully,

Jan. 6th, 1920. RAYNER D. BATTEN.

List of Medical Subjects.

Disease in the Pituitary Region. J. B. Lawford. (Dr. Grainger Stewart spoke.)
A Case of Double Tubercular Iritis. Edgar Chatterton.
Glaucoma associated with Venous Congestion. Freeland Fergus.
Optic Neuritis, with Symmetrical Loss of the Lower Part of the Field, associated with Diabetes. M. S. Mayou.
Case of Bi-lateral Temporary Hemianopia; Rapid and Permanent Recovery of Vision after the Administration of Thyroid Extract. H. L. Eason.
Iritis, Rheumatic and Toxæmic. W. M. Beaumont. (Dr. F. G. Thomson spoke.)
Double Detachment of Retina in a boy with Albuminuria. Rayner Batten.
Amaurotic Family Idiocy in an English Child. E. A. Cockayne, M.D., and John Atlee, M.D.
Conical Cornea with Raynand's Disease. C. Wray.
Retinitis of Pregnancy. J. Herbert Fisher.
Case of Pigmented Degeneration of the Retina associated with Epileptic Fits. F. E. Batten, M.D.
Disturbances of Vision from Cerebral Lesions, with Special Reference to Cortical Representation of the Macula. Colonel Lister and Dr. Gordon Holmes.
(1) Dilated Pupil of Argyll Robertson Type. (2) One-sided Internal Ophthalmoplegia. A. Hugh Thompson.
Neuro-retinitis after Chicken-pox. Leslie Paton.
The Retinal Signs of Arterio-Sclerosis Compared with those Due Simply to Increased Blood Pressure. Bardsley.
Discussion on the Ætiology and Treatment of Iritis. (Even here, *no* physician took part.)
Discussion on Nystagmus, held jointly with the Neurological Section.
Case of Pituitary Tumour. A. W. Ormond.
Pituitary Tumour (Hypopituitarism). L. W. Cargill. (Dr. James Taylor spoke.)
Case of Malignant Disease of the Pituitary Body, with Comments. G. Maxted.
Migraine. J. Herbert Fisher. (Dr. Gordon Holmes and Dr. James Taylor spoke.)
An Unusual Case of Ptosis with Bilateral Ophthalmoplegia Externa. M. L. Hine.
Changes in the Sella Turcica in Association with Leber's Atrophy. Dr. James Taylor.

MIND AND ITS DISORDERS.

To the Editor of THE LANCET.

SIR,—With reference to the pathology of some of the psychoses, and the connexion therewith of the psychoanalytic theories, I venture to suggest an hypothesis which I first brought forward at the annual meeting of the British Medical Association in Aberdeen in 1914. I shall try to put it as briefly as follows: Take, for example, a case of recurrent mania or melancholia. The mental condition is probably the result of a toxæmia of some kind. The hallucinations or delusions present may be analysed, and the nature of these and the reason of their existence explained by psycho-analysis. This procedure cannot, however, be expected to remove the illness which is dependent upon the toxæmia. A further illustration. A subject is given chloroform for a surgical operation. During one of the stages he is delirious. If his remarks are carefully noted and he be subsequently analysed the reason why his babbling took the particular form it did will probably be revealed, but the origin of the condition was the anæsthetic. I do not wish it to be understood that I think this hypothesis is applicable to all the psychoses, but a full discussion would far exceed the limits of a letter. With regard to the review which started this correspondence, I must confess that when I read it I was at first surprised, then saddened. It seemed to me most unfair. I am, Sir, yours faithfully,

R. H. STEEN.

City of London Mental Hospital, Dartford, Kent, Jan. 19th, 1920.

[1] THE LANCET, Nov. 29th, 1919.

THE INSTABILITY OF ROUS-TURNER BLOOD SUSPENSIONS.

To the Editor of THE LANCET.

SIR,—Professor G. Dreyer and Dr. A. D. Gardner, in their letter in your issue of Jan. 10th, state: "We did not use gelatin because its employment would have rendered our results incomparable with those of Douglas and Bigger, who did not make use of it." In our communication[1] we stated that we used "sheep cells washed and stored in the manner described by Rous and Turner." The method which we used was the one recommended by these authors[2] for the preservation of sheep cells. It is described in detail in their paper and, briefly, in the later paper by one of us (J. W. B.)[3] from which Dreyer and Gardner quote. In it gelatin is used in the washing but not in the preserving fluid.

We regret if our desire to make our paper as short as possible caused Professor Dreyer and Dr. Gardner to follow a method of preservation, different from that employed by us in our experiments.

We are, Sir, yours faithfully,

J. S. C. DOUGLAS,
JOSEPH W. BIGGER.

Sheffield, Jan. 15th, 1920.

URBAN VITAL STATISTICS.

(Week ended Jan. 17th, 1920.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had been 12·0, 16·2, and 15·8 in the three preceding weeks, fell to 15·6 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the annual death-rate was 15·8, against 15·7 per 1000 in the preceding week, while among the remaining towns the rates ranged from 5·7 in Newport (Mon.), 9·0 in Smethwick, and 9·1 in Swansea, to 22·0 in Bootle, Preston, and South Shields, 22·6 in Tynemouth, and 22·8 in Barnsley. The principal epidemic diseases caused 327 deaths, which corresponded to an annual rate of 1·0 per 1000, and comprised 102 from measles, 75 from diphtheria, 62 from whooping-cough, 59 from infantile diarrhœa, 27 from scarlet fever, and 2 from enteric fever. Measles caused a death-rate of 1·5 in Nottingham, 2·2 in Barnsley, 2·9 in St. Helens, and 4·5 in Bootle; and whooping-cough of 1·3 in Portsmouth, 1·5 in Bootle, 1·6 in Birkenhead, and 2·8 in Gloucester. The 62 deaths from influenza were 11 less than the number in the previous week, and included 19 in London, 7 in Birmingham, and 3 in Oldham. There were 2758 cases of scarlet fever, 1945 of diphtheria, and 1 of small-pox under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 2809, 1899, and 2 respectively at the end of the previous week. The causes of 39 deaths in the 96 towns were uncertified, of which 6 were registered in Sunderland, 5 in Liverpool, and 4 in London.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality, which had increased from 13·2 to 16·6 in the four preceding weeks, fell to 16·1 per 1000. The 371 deaths in Glasgow corresponded to an annual rate of 17·4 per 1000, and included 4 from diphtheria, 3 from infantile diarrhœa, 2 each from measles and whooping-cough, and 1 each from enteric fever and scarlet fever. The 80 deaths in Edinburgh were equal to a rate of 12·2 per 1000, and included a fatal case each of diphtheria and infantile diarrhœa.

Irish Towns.—The 119 deaths in Dublin corresponded to an annual rate of 15·0, or 2·3 per 1000 below that recorded in the previous week, and included 2 each from whooping-cough and infantile diarrhœa, and 1 each from measles, scarlet fever, and diphtheria. The 166 deaths in Belfast were equal to a rate of 21·0 per 1000, and included 21 from measles, 7 from scarlet fever, 2 each from enteric fever and infantile diarrhœa, and 1 each from whooping-cough and diphtheria.

[1] THE LANCET, July 13th, 1918.
[2] Journal of Exp. Med., February, 1916.
[3] Journal of Path. and Bact., May, 1919.

STRATTON (CORNWALL) COTTAGE HOSPITAL.—This hospital, which has been enlarged and improved, was formally opened by Sir Croydon Marks, M.P., on Jan. 6th. The hospital was founded in 1866, principally by the exertions of the late Mr. John King, M.R.C.S. An operating-room has been built by subscriptions to commemorate the memory of the late Mr. King, and a new ward containing five beds has been also erected.

Medical News.

UNIVERSITY OF BRISTOL.—At examinations held recently the following candidates were successful:—

SECOND EXAMINATION FOR THE DEGREES OF M.B., CH.B.

Part I.—Alexander Thomas Binnie, Sydney Harold Blacker, Arthur Paul Bodman, Ernest Gustave Bradbeer, Ernest Raymond Clutterbuck, Bertram Austin Crook, Bessie Veronica Frith Dawkins, Helen Mary Dixon, Robert Hugh Dummett, Georgina Roberts Dunn, Frank Robert Edbrooke, Norman Jack England, Prosper Gear Evans, Herbert Melhuish Golding, William Arthur Gornall, John Lysaght Griffin, Rowland Clifford Hatcher, Alexander Gordon Heron, Ernest George Hill, John Angell James, Frederick George Jenkins, Doris Ewing Joscelyne, Patrick Cathcart Joscelyne, Edgar Frederick King, Philip Heygate Knowles, Arthur Henry Marshall, John Raymond Nicholson-Lailey, Kenneth Frederic Platt, Arthur Skardon Prowse, Robert Arthur Sammons, Harry Leslie Shepherd, Arthur Erskine Sherwell, Hugh James Heaven Spreadbury, Herbert Taylor, and Robert Elliot Whitby.

Anatomy (completing examination).—Gilbert Bremridge Bush, Constance Lilian Griffiths, George Stenlake Mundy, and Millicent Taylor.

To Dr. R. T. Leiper, professor of helminthology in the University of London, has been awarded by the Senate of Glasgow University the Straits Settlement gold medal for his work in tropical medicine.

INDUSTRIAL RESEARCH AT GIRTON COLLEGE.—Girton College, Cambridge, has received from "A Friend" £10,000, both capital and interest to be applied during the next 20 years for the encouragement of scientific research by women in mathematical, physical, and natural sciences.

THE twenty-second annual dance given by the Middlesex Hospital will be held on Wednesday, Feb. 4th, from 9.45 P.M. to 3 A.M., at the Hyde Park Hotel, Knightsbridge. Tickets (21*s.* each) can be obtained from the honorary secretaries, Dance Committee, Middlesex Hospital.

THE Great Northern Central Hospital has inaugurated an antenatal clinic, which will be held weekly at the out-patient department on Thursdays. An additional session of the gynæcological department will be held on Thursday mornings, as well as on Monday afternoons, as hitherto.

WEST LONDON POST-GRADUATE COLLEGE.—The following lectures will be given on Fridays during the present session in the lecture room of the Post-Graduate College, West London Hospital, Hammersmith, W.

Jan. 23rd, 5 P.M. Professor W. M. Bayliss: Acidosis.
Jan. 30th, 5 P.M. Mr. MacMahon: The Treatment of Functional and Organic Affections of Voice and Speech.
Feb. 6th, 5 P.M. Dr. R. Hutchison: Functional Dyspepsia.
Feb. 13th, 4.30 P.M. Mr. Hey Groves: Bone Grafting in the Treatment of Fracture.
Feb. 20th, 5 P.M. Dr. A. C. Jordan: The Radiography of Chronic Intestinal Stasis.
Feb. 27th, 5 P.M. Dr. J. S. Risien Russell: A Diagnosis of Affections of the Cerebellum.
March 5th, 5 P.M. Dr. Donald Hood: Some of the Clinical Aspects of Aortic Disease.
March 12th, 5 P.M. Sir A. Pearce Gould: An Old Clinical Lecture, New Edition.
March 19th, 5 P.M. Professor Sir Clifford Allbutt: Kinds of Pneumonia.
March 26th, 5 P.M. Sir W. Arbuthnot Lane, Bart.: Intestinal Stasis.

These lectures are open without fee to medical practitioners, who will be cordially welcomed.

ROYAL SANITARY INSTITUTE.—Commencing on Feb. 2nd, 6th, and 9th respectively courses of lectures and demonstrations will be given at 90, Buckingham Palace-road, London, S.W., for (1) sanitary officers, (2) meat and food inspectors, and (3) women health visitors and child-welfare workers, the lecture hour in all cases being 6 P.M. Among the lectures for the first course, lasting three months, are Dr. R. King Brown, Dr. A. Greenwood, and Dr. Charles Porter, and the fee is £5 for the complete series. The elementary and theoretical part, however, can be attended at a fee of £3 13*s.* 6*d.* and the practical part for £2 2*s.* Dr. W. J. Howarth and Dr. King Brown are among the lecturers for the meat inspectors' course, which lasts for two months, the fee being £4 14*s.* 6*d.*, or, including the practical part of the sanitary officers' course, £5 5*s.* Among the lecturers for the health visitors' course are Dr. J. A. H. Brincker, Dr. G. F. Buchan, Dr. R. V. Clark, Dr. L. Fairfield, Dr. A. Greenwood, Dr. A. B. Kingsford, Dr. E. F. Palgrave, Dr. Charles Porter, Dr. Eric Pritchard, Dr. M. G. Thackrah, and Miss K. M. Vaughan. The fee for the complete course, which lasts for two months, is £5 5*s.*, or for the first half, dealing with hygiene and sanitation, personal and general, £3 13*s.* 6*d.*, and the second half, dealing with the special care of the mother and child, £2 2*s.*

Dr. S. R. Alexander, who has continuously occupied the civic chair at Faversham for the past ten years, has been admitted to the freedom of the borough.

THE Lettsomian lectures of the Medical Society of London are to be delivered by Dr. Herbert Spencer, at 11, Chandos-street, London, W., on Feb. 2nd and 16th and March 1st, at 9 P.M. Dr. Spencer has chosen as his subject the Tumours Complicating Pregnancy, Labour, and the Puerperium. Sir D'Arcy Power's annual oration on May 10th will be on "The Rev. John Ward and Medicine."

ROYAL INSTITUTION.—On Tuesday next (Jan. 27th), at 3 o'clock, Professor G. Elliot Smith begins a course of three lectures at the Royal Institution on the Evolution of Man and the Early History of Civilisation. On Saturday, Jan. 31st, Sir Frank Watson Dyson, the Astronomer Royal, delivers the first of three lectures on the Astronomical Evidence bearing on Einstein's Theory of Gravitation; and on Thursday, Feb. 5th, Professor A. E. Conrady commences a course of two lectures on Recent Progress in Applied Optics. The Friday evening discourse on Jan. 30th will be delivered by Mr. S. G. Brown on the Gyrostatic Compass, and on Feb. 6th by Sir Walter Raleigh on Landor and the Classic Manner.

SPEEDING UP OUR HOME SPAS.—The Harrogate Corporation announce that they have recently appointed a pathologist and bacteriologist as a consultative authority on all that appertains to the healing value of the waters, and they have also secured the services of an analytical chemist on the baths' staff, with the view of keeping the numerous mineral waters of this well known watering-place under constant scientific supervision. This policy is to be welcomed as promising to reduce the empiricisms of balneo-therapeutic practice.

THE CREMATION MOVEMENT.—Since the establishment of the Woking Crematorium in 1885 the number of bodies cremated has increased every year. 1795 cremations took place in 1918, and 2031 in 1919. According to the Cremation Society of England there are over 70 crematoriums in the United States, where the number of incinerations now exceeds 20,000 per annum. The society points out that no increase has been made in the pre-war charge of five guineas for incineration in London and at the majority of the provincial crematoriums, and that apart from the æsthetic and sanitary advantages of cremation, its economic advantage in saving valuable land for other purposes is also of importance to the community. Life-membership of the Cremation Society can be obtained on payment of the sum of £5 5s., and entitles the member to free incineration at any crematorium in Great Britain.

DONATIONS AND BEQUESTS.—Dame Amy Fanny Tate, widow of the late Sir Henry Tate, has given, among other bequests, £1000 each to Charing Cross Hospital; the Middlesex Hospital, Cancer Ward; the Hahnemann Convalescent Home, Bournemouth; and the Homœopathic Convalescent Home, Eastbourne; £3000 to the British Home for Incurables, Streatham; £4000 to the Queen Victoria Jubilee Institution for Nurses; £500 to the Brixton Nursing Association, Tulse-hill; £300 to the Baldwin Brown Convalescent Home, Herne Bay; £1000 to the Grand Priory of the Order of the Hospital of St. John of Jerusalem; £100 each to the head nurse of the Sir Henry Tate Memorial Home, Tulse-hill, and the other nurses there; £500 to the executors for the doctors, nurses, and attendants at her last illness.—Mr. J. C. Gould, M.P., has given £10,000 to the Cardiff Hospital.—The late Miss R. J. Horlock, of Clifton, Bristol, bequeathed £1000 to the Bristol Royal Hospital for Children to endow a cot.

HEALTH OF BIRMINGHAM.—The report of Dr. J. Robertson, the medical officer of health, shows that public health in the year 1919 was better than in the preceding year. The birth-rate was still low, being only 20·7 per 1000 as compared with 27·3 in 1913, but higher than in 1917 or 1918. The death-rate was the second lowest ever recorded in Birmingham, this notwithstanding the severe epidemic of influenza. A death-rate of 13·0 is exceedingly low, being 2·2 better than in 1918, and only second to 12·6 recorded in 1917. Infant mortality showed a great improvement. The rate fell to 85 per 1000 births, much lower than in any previous year, and it is gratifying to know that for many years the rate has steadily declined. The incidence of diarrhœa and enteritis was the lowest ever registered in the city, and there were fewer cases of pulmonary tuberculosis reported last year than in any year since 1910. There is no doubt that in Birmingham tuberculosis is showing definite signs of decline, and this, as also the lower infant mortality, is to be attributed to the work of the different agencies employed by the Public Health Committee. The number of cases of pulmonary tuberculosis notified was 2609 as compared with 2905 in 1918 and 3388 in 1916.

HOSPITAL PROBLEMS IN BIRMINGHAM: AN ADDRESS BY SIR BERTRAND DAWSON.—Hospital matters are attracting much attention in Birmingham. At the end of 1918 practically every hospital found itself with a heavy deficiency. The General Hospital, for example, spent £18,268 more than its income from all sources; the Queen's Hospital, £6113; the General Dispensary, £3539; the Children's Hospital, £3470; and the Women's Hospital, £4663. The balance-sheets for 1919 are not yet published, but it is known that the total deficiency for all the hospitals will approach £50,000. An increase in annual income of this amount will be necessary to carry on the work upon its pre-war basis, but much greater demands are now made upon hospital accommodation. Compared with other towns Birmingham is badly placed in the matter of hospital beds. Whereas Manchester has 2·30 beds per 1000 of the population, Newcastle 2·26, Bristol 2·13, and Wolverhampton 2·12 beds, Birmingham has only 1·14 beds. At least 1000 new beds are required to meet present requirements. There is also great need for new convalescent homes, which would economise the beds in hospital wards. Recently there was formed a hospital council; through its activities overlapping is avoided and the expenses of administration reduced to a minimum.

On Jan. 15th Sir Bertrand Dawson addressed a large meeting of the Birmingham branch of the British Medical Association upon the future of voluntary hospitals. Laymen interested in hospital management were present. Sir Bertrand Dawson pointed out that the proportion of the community needing hospital treatment in the event of sickness was steadily increasing owing to the cost and complexity of modern treatment and the difficulties of domestic service. Not only were our hospitals inadequate in numbers, but they were not performing the right functions. They were called upon to do too much work and the wrong kind of work. In the future hospitals must be more widely distributed and graded. First should come the primary hospitals, set up in both urban and rural areas, where patients would be referred for further treatment, under the care of their own doctors. Nothing was more important than to give doctors the equipment for good work, and that could only come when they had access to institutions for such patients as required the help, organisation, and equipment of a hospital. The central hospitals should be a court of appeal. To them patients would go because their cases demanded more skill and better equipment than could be obtained in the local hospitals, or because they could serve the cause of medical education. At accessory hospitals—e.g., adapted Poor-law infirmaries—there could be treated cases which were not necessarily of great clinical interest, but which were of enormous importance from the economic point of view. Many cases, such as fistulæ, piles, and septic hands could not now be admitted, owing to the fact that beds were required for major operations. From an economic standpoint this was disastrous. From the educational point of view the work of the different hospitals should be coördinated so that they could widen the field for their students. They could in these accessory hospitals give the students the opportunity of instruction in those diseases which the great majority of them needed most when they went into practice. One of the pressing needs for years had been the establishment of a consultants' service under the Insurance Act. That would necessitate fabric, equipment, and clinics. From present evidence it seemed clear that any new hospitals would have to be maintained by public authority. The voluntary hospitals should aim at maintaining their traditions and acquiesce in peaceful penetration by the State rather than absorption. He was sure it would be a bad thing for the community if absorption took place. If the whole cost of curative treatment was provided free it would impose a very great burden on the State. Experience showed that patients did not object to paying. In the primary hospitals there might be a standard rate for public and private wards, which would include the whole of the hospital equipment, nursing, and maintenance, but not medical attendance. For the central hospitals there could also be a standard rate of admission to the public wards. This would include medical treatment, because the patient would have passed from the care of his own doctor to that of the consultant's.

THE LATE MR. J. T. CHAMBERLAIN.—James Thomas Chamberlain, of the Manor House, Great Shelford, near Cambridge, who died on Dec. 26th, 1919, had retired over 24 years ago after 10 years of practice in Nottinghamshire, removing at first to Harston, near Cambridge, and thence to Great Shelford. He was born on March 15th, 1856, in Leicestershire, and qualified L.R.C.P. & S. Edin., 1886, and L.F.P.S. Glasg. in the same year. He was a medallist in midwifery and diseases of women and children. He had done much quiet but effective work in the village where he resided, and was one of the trustees of the Shelford Charities and a guarantor of the Shelford Nursing Institution. He leaves a widow to mourn her loss.

THE King has appointed Colonel A. L. A. Webb, C.B., C.M.G., R.A.M.C., and Surgeon Vice-Admiral Sir William Henry Norman, K.C.B., Knights of Grace of the Order of St. John of Jerusalem in England.

Bretby Hall, Burton-on-Trent, formerly the seat of the Earl of Carnarvon, has just been bought by the Derbyshire County Council for use as a sanatorium for tuberculous cases. It stands in a park of 700 acres, of which some 440 acres, mostly of sandy gravel, have been obtained.

STAMMERING IN SCHOOL CHILDREN IN BATH.—On the recommendation of the school medical officer for Bath, a class for stammering children, in which the Berguand method may be used, is to be formed.

HOSPITAL SUNDAY FUND AT PLYMOUTH.—As a result of the Hospital Sunday collection in Plymouth, which was observed in October last, the sum of £750 has been received for the South Devon and East Cornwall Hospital, compared with £627 in 1918.

PRESENTATION TO A MEDICAL MAN.—Dr. A. E. Larking, J.P., who has retired after 13 years' residence in Buckingham, was recently presented by over 700 patients and friends with an album containing their names, together with an illuminated address and £50.

DIDWORTHY SANATORIUM, DARTMOOR.—This institution has received a grant of £250 from the King Edward's Hospital Fund for London, in consideration of which ten beds will be reserved for the use of certain London hospitals during 1920.

A LONG APPOINTMENT.—At the last meeting of the Liskeard (Cornwall) board of guardians Mr. W. Nettle, J.P., resigned the post of medical officer to the workhouse and No. 1 district, after nearly 46 years' service. The resignation was accepted with regret, and several of the guardians alluded to Mr. Nettle's valuable services.

DEATH OF DR. A. N. LEDINGHAM.—Alexander Napier Ledingham, who died at his residence in Bayswater from heart failure on Jan. 13th, studied medicine at Glasgow University and at University College, London. He graduated M.B., C.M. at Glasgow in 1880 and five years later the F.R.F.P.S. Glasgow. In 1891 he obtained the D.P.H. of the English Conjoint Board. Dr. Ledingham was surgeon to the British India Steam Navigation Company and superintendent of the Queensland Government Emigration Service. Formerly he was resident surgeon to the Glasgow Maternity Hospital and to the Glasgow Royal Infirmary.

NURSES REGISTRATION (SCOTLAND) ACT, 1919.—The Scottish Board of Health are taking steps towards the constitution of the General Nursing Council for Scotland established by the Nursing Registration (Scotland) Act, 1919. On the first constitution of the Council 13 of the 15 persons composing the council are to be appointed by the Scottish Board of Health. Four are to be appointed after consultation with persons and bodies having special knowledge and experience of training schools for nurses, of the work of matrons of hospitals, of general and special nursing services and of general and special medical practice, and nine of the persons to be appointed by the Board of Health must be, or must have been at some time, nurses actually engaged in rendering services in direct connexion with the nursing of the sick. The Board, anxious that the new council should be representative, invite suggestions for membership of the council, but all recommendations should be accompanied by a statement of the special qualifications and experience of the persons suggested.

THE LATE DR. H. W. DARRELL.—By the death of Harrington Wyndham Darrell, who died on Jan. 10th from pleurisy and pneumonia at the age of 56, a well-known figure is removed from Norwich medical circles. He was born at Devonshire, Bermuda, and educated at the University of Toronto, where he obtained his M.D. degree. He also studied at the London Hospital, qualified as L.R.C.P. Lond., and settled in Norwich about 35 years ago. Dr. Darrell built up a large practice, which included many panel patients. He held the appointments of Poor-law medical officer, and surgeon-accoucheur to the Norwich Lying-in Charity. A Conservative and a keen tariff reformer, he was for many years a member of the Norwich City Council. He was a recognised expert on horses, his stud of trotting horses and ponies being well known locally; he was also a member of the Norfolk and Norwich Kennel Club, and possessed a variety of large and small dogs. Ornithology was also one of his hobbies, and his special study of foreign birds brought him some general recognition as an authority on this subject. As might reasonably be expected, a man of such varied interests was very popular, and his funeral was largely attended.

The Services.

ARMY MEDICAL SERVICE.

Major-Gen. Sir H. N. Thompson, K.C.M.G., is placed on the half-pay list.

Temp. Col. C. M. Wenyon, C.M.G., relinquishes his commission and retains the rank of Colonel.

Col. F. W. Begbie, C.B.E., retires on retired pay.

ROYAL ARMY MEDICAL CORPS.

The undermentioned relinquish the acting rank of Lieutenant-Colonel: Majors J. H. R. Winder and R. W. D. Leslie; Capt. E. W. Wade; Temp. Capt. R. Jamison (on ceasing to be specially employed).

Capts. W. K. Campbell, J. F. Bourke, A. Jackson, and Temp. Capts. R. Nichol, J. Porter, W. Brown relinquish the acting rank of Major.

Temp. Capt. (acting Major) D. O. Riddel relinquishes the pay and allowances of his acting rank.

J. A. Martin and J. A. Cowan to be temporary Captains.

Temporary Lieutenants to be temporary Captains: P. Johnson, W. L. Young, J. H. Rodgers, C. K. T. Hewson, P. P. Galea, F. C. S. Bradbury, H. G. Watters, H. H. McClelland.

Officers relinquishing their commissions:—Temp. Major F. C. Purser (and retains the rank of Major); Bt. Major S. P. Hodkinson (retains the Brevet rank of Major); Temp. Capt. A. Peden. Temporary Captains granted the rank of Major: G. Jackson, S. S. Dunn, T. M. Bellew, W. H. Alderton, P. J. Lane, W. Gemmill, J. G. Duncanson, R. MacDonald. Temporary Captains retaining the rank of Captain: J. P. McGreehin, R. W. L. Todd, P. C. Cole, C. L. Stewart, B. E. Laurence, B. Dunlop, A. Davidson, W. H. Bush, A. J. Dempsey, J. Russell, J. J. Dowdall, M. R. V. Ford, L. T. Stewart, R. M. Wilson, W. K. Connell, J. McPolin, I. S. James, S. J. Cowell, C. R. Denny, E. Gordon, A. Dick, A. Scott, E. D. Wortley, P. Davies, J. A. D. Radcliffe, H. J. Gater, S. P. Moore, G. O. Connell, L. C. Johnston, R. C. Maclachlan, C. N. Coad, A. F. Flower, W. Hornsby.

SPECIAL RESERVE OF OFFICERS.

Capt. W. Donald relinquishes the acting rank of Major.

TERRITORIAL FORCE.

Capts. (acting Majors) M. Coplans and E. A. Houchin relinquish the acting rank of Major on ceasing to be specially employed.

1st London Sanitary Company: Lieut. F. C. Cook to be Captain.

2nd London Sanitary Company: Lieut. S. Shaw to be Captain.

ROYAL AIR FORCE.

Medical Branch.—J. D. Keir (Surgeon Commander, R.N.) is granted a temporary commission as Lieutenant-Colonel.

Capts. H. Munro, J. A. Johnson, and S. A. Nield-Faulkner are transferred to the unemployed list.

H. J. Swan (late Flying Officer, R.A.F.) is granted a temporary commission as Flight Lieutenant.

THE HONOURS LIST.

The following awards for war services are announced:—

C.B.E.—Temp. Lt.-Col. R. Row, I.M.S.; Capt. D. R. R. Singh, I.M.S.; Mr. C. H. Elmes, O.B.E., officiating Health Officer, Port of Calcutta, Bengal.

O.B.E.—Miss R. Balmer, Hon. Capt. R.A.F. Med. Serv.; Flight-Lieut. R. L. Roe, R.A.M.C.; Mr. C. H. Lincoln, M.B.E., Asst. Surg., Ind. Med. Dept., acting Consul for Arabistan, Persian Gulf.

M.B.E.—Khan Bahadur Mir Diwan Ali, Civil Surg., Multan, Punjab; Mr. G. N. Coombes, Chief Med. and Sanit. Officer of the Cochin State, Madras; Mr. J. D. O'Donnell, Chief Med. Officer, Kolar Gold Field, Mysore.

BROUGHT TO NOTICE.

The names of the following (all of the R.A.M.C. except where otherwise stated) have been brought to the notice of the Secretary of State for War for valuable services rendered on hospital ships during the war:—

Capt. L. M. Byers; Temp. Capt. (acting Maj.) W. A. Clayton; Maj. E. L. D. Dewdney (T.F.); Maj. C. L. Dunn, I.M.S.; Temp. Capt. H. B. Emerson; Temp. Capt. J. H. Glover; Capt. J. W. Grice; Temp. Capt. W. R. G. Hamilton; Temp. Maj. J. G. Heath; Temp. Capt. T. Heywood; Temp. Capt. W. P. Jones; Temp. Capt. H. A. Lane; Temp. Capt. J. M. Lazenby; Temp. Capt. G. W. P. Maitland; Temp. Capt. (acting Maj.) H. McIntyre; Temp. Maj. R. T. Meadows, D.S.O.; Temp. Capt. (acting Maj.) H. H. O'Heffernan; Surg.-Maj. B. Pares, C.M.G., D.S.O., R.H. Gds.; Lt. (acting Capt.) E. H. Rainey; Temp. Maj. P. J. A. Seccombe; Temp. Capt. R. E. Smith; Temp. Maj. T. Walcot; Temp. Maj. A. W. Wilcox; Lt.-Col. H. A. Williams, D.S.O., I.M.S.

The names of the following (all of the R.A.M.C. except where otherwise stated), brought to notice for distinguished

and gallant services and devotion to duty, are to be added to the lists already published dealing with the spheres of operations detailed:—

France.—Temp. Capt. H. Body; Col. N. Faichnie; Maj. J. H. Gurley; Capt. D. C. Scott.
Egypt.—Temp. Capt. W. I. Adams; Capt. (acting Lt.-Col.) J. Blackwood; Lt. (temp. Capt.) W. M. Cameron; Temp. Capt. T. L. Clark; Temp. Capt. W. E. R. Dimond; Lt.-Col. (acting Col.) C. Garner, C.B.E.; Temp. Capt. F. W. Grant; Capt. D. R. Hennessy; Lt.-Col. P. S. Lelean, C.B.; Temp. Capt. F. A. L'Estrange; Capt. R. H. Maingot; Capt. S. A. Mann; Temp. Capt. T. D. Miller; Temp. Capt. G. C. Ramsay; Capt. P. W. Ransom; Capt. (acting Maj.) A. E. Richmond; Capt. P. P. J. Stewart; Temp. Capt. S. M. Vassallo; Temp. Capt. M. J. T. Wallis; Capt. C. H. Welsh; Capt. R. B. Willan; Temp. Capt. H. G. E. Williams. *Austr. A.M.C.*—Maj. (temp. Lt.-Col.). J. R. Mc.N. Beith; Lt.-Col. C. B. Blackburn, O.B.E.; Maj. (temp. Lt.-Col.) M. W. Cave; Capt. F. A. Comins; Capt. C. R. Hodgson; Maj. E. K. Parry, M.C.; Maj. H. Sutton; Capt. W. G. H. Tregear. *New Zealand M.C.*—Lt.-Col. R. H. Walton. *I.M.S.*—Capt. A. W. Duncan; Capt. (acting Maj.) G. L. Duncan; Temp. Capt. C. M. Ganapathy; Temp. Lt. G. A. Hildreth; Capt. (temp. Maj.) R. F. D. MacGregor, M.C.; Maj. (acting Lt.-Col.) J. Mc. A. Macmillan; Capt. A. Seddon; Temp. Lt. D. S. Otto.
Italy.—Temp. Capt. (acting Maj.) J. C. L. Day; Temp. Capt. (acting Maj.) H. E. Gamden; Lt. W. R. McLinden.
Mediterranean Lines of Communication.—Col. J. C. B. Statham, C.M.G., A.M.S.
Mesopotamia.—Temp. Capt. G. A. Back; Temp. Capt. B. E. A. Batt; Capt. A. B. Black; Temp. Capt. N. G. Braham, M.C.; Capt. I. Brawn; Capt. (acting Maj.) E. Butler; Temp. Capt. L. D. Callender; Temp. Capt. A. L. Candler; Capt. (acting Maj.) J. W. Cannon; Capt. R. Colley; Capt. W. H. Dye; Temp. Capt. H. Findlay; Capt. (acting Maj.) J. F. Grant; Temp. Capt. N. Gray; Capt. (temp. Maj.) T. J. Hallinan; Capt. J. S. Hopwood; Lt. W. M. Jones; Capt. J. LeM. Kneebone; Lt. L. K. Ledger; Temp. Capt. J. N. Lyons; Capt. (acting Maj.) C. E. W. McDonald; Temp. Capt. M. D. Mackenzie; Temp. Capt. (acting Lt.-Col.) T. H. Martin; Capt. C. K. Mowll; Lt.-Col. A. R. O'Flaherty; Capt. A. B. Preston; Capt. (temp. Maj.) H. G. Robertson; Capt. R. Rodger; Temp. Capt. B. T. Saunders; Temp. Capt. R. G. Smith; Temp. Capt. P. Talbot; Temp. Lt. W. B. Vaile; Capt. (acting Maj.) A. Wilson; Temp. Capt. G. S. Woodman. *I.M.S.*—Lt.-Col. A. E. Berry; Maj. (acting Lt.-Col.) E. W. C. Bradfield, O.B.E.; Capt. (acting Maj.) R. A. Chambers; Temp. Capt. B. R. Chandorkar; Capt. (acting Maj.) P. D. Chopra; Capt. J. C. De; Temp. Capt. S. B. Gothaskar; Lt.-Col. (temp. Col.) E. V. Hugo, C.M.G.; Capt. (acting Maj.) E. W. O'G. Kirwan; Temp. Capt. J. G. Mukharji; Maj. (acting Lt.-Col.) M. J. Quirke.
Salonika.—Capt. L. B. Clarke; Temp. Capt. W. D. Cruickshank; Temp. Capt. J. R. Davies; Capt. G. Hardwike; Capt. (acting Maj.) I. Jones; Capt. P. Seymour-Price; Capt. C. G. Skinner; Capt. (acting Maj.) D. G. Stoute; Temp. Capt. A. C. Sturrock.

The names of the following have been brought to notice for gallant and distinguished services rendered at Aden during the period from Sept. 1st to Dec. 31st, 1918:—

Lt.-Col. T. H. Foulkes, I.M.S.; Maj. (temp. Lt.-Col.) I. M. Macrae.

TERRITORIAL DECORATION.

The King has conferred the Territorial Decoration upon the undermentioned officers:—

Army Medical Service.—Col. P. C. Burgess.
Royal Army Medical Corps.—Capt. (acting Major) A. L. Whitehead, 2nd Northern General Hospital; Capt. G. J. R. Lowe, 4th Northern General Hospital; Lieut.-Col. A. G. Hay, 3rd Scottish General Hospital; Capt. and Brevet Major K. W. Monsarrat, 1st Western General Hospital; Lieut.-Col. F. E. Fremantle, General List; Major W. D. Watson, 1st East Anglian Field Ambulance; Major A. E. Kidd, 3rd Highland Field Ambulance; Major J. Wood, 1st West Lancs Field Ambulance; Capt. F. W. K. Tough, 3rd West Lancs Field Ambulance; Major W. A. Burns, 2nd Lowland Field Ambulance; Major J. H. Dixon, 5th London Field Ambulance; Lieut.-Col. J. Allison, attached Northumbrian Yeomanry; Major P. McK. Terry, attached Wessex Division Ammunition Column, R.F.A.; Lieut.-Col. F. W. Gibbon, attached Tyne Electrical Engineers; Major (acting Lieut.-Col.) J. Scott, attached 5th Battalion, Royal Scots; Major W. Haig, attached 6th Battalion, Royal Highlanders; Major J. Middleton, attached 5th Battalion, Gordon Highlanders.

THE LATE DR. J. W. HEMBROUGH.—**John William Hembrough, who died on Jan. 13th after undergoing an operation, had been medical officer of health for Northumberland for the past 26 years. A native of Lincoln, he studied medicine at St. Bartholomew's Hospital, London, where he held several resident posts. He qualified L.S.A. in 1865 and M.R.C.S. Eng. in the following year, and was health officer to the Tynemouth rural sanitary authority before becoming county officer, later obtaining the M.D. Durh. and the D.P.H.**

SUDDEN DEATH OF MR. C. M. BERNAYS.—**Charles Murchison Bernays, who qualified L.R.C.P. Lond., M.R.C.S. Eng. in 1906, was found dead on Jan. 6th at the Royal Victoria Hospital, Dover, where he was house surgeon, a few minutes after attending a casualty case. After qualifying, he started practice at Shirley, Birmingham, but joined the Royal Army Medical Corps on the outbreak of war, and served in a front line clearing station in France from 1914 to 1917, where in August of that year he was badly gassed. His death was due to hæmorrhage as a result of this gassing.**

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

CORFIELD, C. R., L.M.S.S.A., has been appointed Second Anæsthetist to the Northern Hospital for Women and Children, Manchester.
SALMOND, R. W. A., M.D., Ch.M., Honorary Radiologist to University College Hospital, and Lecturer in Radiology at the Medical School.
VLIELAND, C. J., M.D. Durh., M.R.C.S., L.S.A., Medical Officer of the New Clinic for the Treatment of Venereal Disease at the Royal Devon and Exeter Hospital.
University of Cambridge: PALMER, W. G., of St. John's College, Demonstrator of Chemistry; THACKER, C. R. A., of Sidney Sussex College, Demonstrator of Physiology; and SWAN, M. B. R., of Gonville and Caius College, Demonstrator of Pathology.
Certifying Surgeons under the Factory and Workshop Acts: SELLORS, T. B., M.D. Durh. (Essex); MACCARTHY, J. T. (Coolrain), PRETTY, K., M.B. Camb. (Ipswich), DOUGLAS, J. H., M.D. Glasg. (Whithorn).

Vacancies.

For further information refer to the advertisement columns.

Barnsley, Beckett Hospital.—H.S. £200.
Bedford County Hospital.—H.S. and H.P. £175 and £150 respectively.
Belgrave Hospital for Children, Clapham-road, S.W.—Asst. P.
Birkenhead Borough Hospital.—Two Hon. Asst. M.O.'s.
Birmingham City Mental Hospital, Rubery Hill, near Birmingham.—First and Second Asst. M.O.'s. £500 and £400.
Birmingham, City Fever Hospital, Little Bromwich.—Asst. M.O. £300.
Birmingham General Hospital.—H.P., Obstet. H.S., and H.S. £100. Clin. Path. £600.
Bradford City Education Committee, Medical Inspection of School Children.—Asst. Sch. M.O. £600.
Bradford Union, St. Luke's Hospital.—Asst. Res. M.O. £400.
Bristol, Beach House Estate Sanatorium.—Res. Supt. M.O. £800.
Bristol General Hospital.—Senr. R.M.O. £300.
British Guiana.—Asst. M.O. £400.
Camberwell Borough.—Asst. M.O.H. £550.
Carlisle, Cumberland and Westmorland Mental Hospital, Garlands.—Jun. Asst. M.O. £350.
Chartham, near Canterbury, Kent County Mental Hospital.—Jun. Asst. Third M.O. £300.
Colchester, Essex County Hospital.—H.P. £200.
Cornwall County Council, Truro Venereal Clinics.—Part-time M.O.'s.
Darlington General Hospital.—H.S. £250.
Derbyshire Education Committee.—Sch. M.O. £500.
Dorchester, Dorset County Council Education Committee.—School Dentists. £400.
Dover, Royal Victoria Hospital.—H.S. £180.
Dreadnought Hospital, Greenwich.—H.S. £50.
Dudley County Borough.—M.O.H. and Sch. M.O. £800.
Dudley, Guest Hospital and Eye Infirmary.—Vacancy on Hon. Surg. Staff. Also two Hon. P.'s.
East Suffolk County Education Committee.—Dentist £400.
Elizabeth Garrett Anderson Hospital, Euston-road.—Jun. Asst. P., Path., Asst. Path. Also Clin. Asst. £1 1s. per attendance.
Farringdon General Dispensary, 17, Bartlett's-buildings, Holborn Circus, E.C.—Hon. P.
Gilbert and Ellice Islands Colony and British Solomon Islands Protectorate.—Sen. M.O.'s. £600 each.
Gold Coast and Sierra Leone.—Dent. S. £500.
Hospital for Sick Children, Great Ormond-street, London, W.C.—H.S. £50.
Kincardine Education Authority.—Asst. Sch. M.O. £450
Lancaster County Asylum.—Asst. M.O. £300.
Leamington Spa, Borough of.—M.O.H. £650.
Leasowe, Cheshire, Hospital for Children.—Junr. M.O. £200.
Leeds Infirmary, Indoor Institutions, Beckett-street.—Second Asst. M.O. £300.
Leeds Public Dispensary.—Hon. Radiologist.
Lewes, East Sussex County Council Education Committee.—Jun. Asst. Sch. M.O. £450.
Lincoln County Hospital.—Jun. H.S. £150.
Lindsey County Council.—Asst. Tuberc. O. and Asst. Sch. M.O. £450.
Liverpool Stanley Hospital.—H.P. and S. £150 each.
London County Council Mental Hospitals Service.—Fifth Asst. M.O.'s. £300.
London Hospital Medical College, Mile End, E.—Lecturer on Neuroses and Psycho-Neuroses.
Manchester, Ancoats Hospital.—H.P. £150.
Manchester Children's Hospital, Pendlebury, near Manchester.—Res. M.O. £150. Asst. S. £50.
Margate, Royal Sea-Bathing Hospital for Surgical Tuberculosis.—Res. S. £200.
Metropolitan Ear, Nose, and Throat Hospital, 2, Fitzroy-square, W.—Clin. Assts.
Metropolitan Hospital, Kingsland-road, E.—Asst. P.
Middlesex County Council.—Temp. Tuberc. M.O. £600.
Miller General Hospital for South-East London, Greenwich-road, S.E.—Res. Cas. O. Also H.S. £100.
Newcastle-upon-Tyne, Hospital for Sick Children.—Junior Res. M.O. £200.
Newcastle-upon-Tyne, Royal Victoria Infirmary.—Specialist M.O. £500. Two Surg. Specialists. £125. Jwo Junr. M.O.'s. £450 and £218 8s. Female Junr. M.O. £327 10s.

New Zealand, Auckland Hospital.—Bact. and Path. £900.
Norwich City.—Asst. M.O.H. £300.
Nottingham Children's Hospital.—Female Res. H.S. £200.
Nottingham City Education Committee.—Jun. Asst. Sch. M.O. £500.
Nottingham General Hospital.—H.S. £150.
Oldham County Borough.—Asst. M.O. £400.
Oxford, Radcliffe Infirmary and County Hospital.—H.P. Cas. H.S. £200.
Paddington Green Children's Hospital, London, W.—S. to Eye Dept., P. to Skin Dept., and P. to Out-patients.
Peterborough Infirmary.—H.S. £150.
Plymouth, South Devon and East Cornwall Hospital.—H.S. £200. H.P. £140.
Prince of Wales's General Hospital, Tottenham, N.—Hon. Asst. P., Hon. P. to Children's Dept., and Clin. Assts.
Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Clin. Assts.
Reeth Union and Rural District Council, Yorkshire.—M.O.H. £170.
Royal Free Hospital, Gray's Inn-road, W.C.—Asst. M.O.'s in Venereal Diseases (Female) Dept. £250 and £150 respectively.
Royal Waterloo Hospital for Children and Women, S.E.—Hon. Ophth. S. and Hon. S. to Out-patients.
St. Bartholomew's Hospital.—Asst. Physician-Accoucheur.
St. Mary's Hospital, Paddington.—First Asst. Pathol. £500.
St. Pancras Borough Council.—Asst. M.O. £450.
Salisbury Municipality, Rhodesia, S.A.—M.O.H. £600
Sheffield Royal Hospital.—Asst. Cas. O. £120.
South London Hospital for Women, South Side, Clapham Common, S.W.—Female Clin. Assts.
Straits Settlements.—Res. M.O. £840.
Straits Settlements and Federated Malay States.—M.O.'s.
Swansea County Borough.—Asst. M.O.'s. £600 and £500.
University of London, South Kensington.—Examiners.
Victoria Hospital for Children, Tite-street, Chelsea, S.W.—S. to Out-patients.
Wakefield, West Riding County Council.—School Oculist. £550.
Wallsend Borough.—M.O.H. £800.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Newmains, Duncannon, and at Rochdale.

Births, Marriages, and Deaths.

BIRTHS.

BIGGER.—On Jan. 16th, at a Nursing Home, the wife of Walter G. Bigger, D.S.C., M.B., B.Ch., St. Thomas's Hospital, of a daughter.

BONNEY.—On Jan. 10th, at Vicarage-gardens, Kensington, the wife of Ernest H. Bonney, M.R.C.S., L.R.C.P., of a son.

COLLINGRIDGE.—On Jan. 13th, at The Manor House, Goudhurst, Kent, the wife of W. R. Collingridge, M.R.C.S., of a daughter.

KENNEDY.—On Jan. 11th, at Wantage, Berkshire, the wife of W. D. Kennedy, M.B., of a son.

MARRIAGES.

SILLEY—BOSWELL.—On Jan. 15th, at St. Martin's Parish Church, Scarborough, Herbert Henry Silley, M.R.C.S., L.R.C.P., to Katharine Mary, eldest daughter of the late Mr. and Mrs. E. W. Boswell, of Norwich.

SUNDERLAND—SMITH.—On Jan. 15th, Reginald Henry Sunderland, M.R.C.S., L.R.C.P., of Bradford, to Grace Clarissa Smith, of Highgate, Walsall.

SWAN—KELLY.—On Dec. 10th, 1919, at the Roman Catholic Church, College-road, Malvern, by the Rev. J. Jordan, Harold J. Swan, M.B., B.Ch., of Terenure, Dublin, to Marcella Bertile Kelly, M.B., B.Ch., of Ballymote, Co. Sligo.

DEATHS.

ATKINSON.—On Jan. 14th, at his residence, Butts Park, St. Tudy, Cornwall, Charles Henry Fairbank Atkinson, O.B.E., M.R.C.S., L.R.C.P., Surgeon-Lieutenant, R.N.V.R.

CALEY.—On Jan. 15th, following an operation, Guthrie Neville Caley, M.D., M.S., of Colville House, Ealing, aged 58 years.

LEDINGHAM—On Jan. 13th, of heart failure, Alexander Napier Ledingham, M.B., C.M., F.R.F.P.S. Glasg., and D.P.H. Lond.

TURNER.—On Jan. 16th, at Stanton, Anerley, S.E., John Sidney Turner, J.P. (Kent), F.L.S., F.Z.S., M.R.C.S., aged 76 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, TINDALL, AND COX, London.
Letters of a Widowed Physician to His Daughter at Puberty, Maturity, Marriage, and Motherhood. Pp. 64. 2s. 6d.
Popular Chemical Dictionary. By C. T. Kingzett, F.I.C., F.C.S. Pp. vi. + 368. 15s.

CHURCHILL, J. AND A., London.
Year Book of Pharmacy. Edited by J. O. Braithwaite, T. Stephenson, and C. H. Hampshire. Pp. 520.
Modern Spiritism: Its Science and Religion. By A. T. Schofield, M.D. Pp. 260. 3s. 6d.
Ophthalmological Transactions, Vol. XXXIX. Ophthalmological Society of the United Kingdom, Session 1919. Pp. 428. 12s. 6d.

WRIGHT, J., Bristol.
Diseases of the Throat, Nose, and Ear, for Practitioners and Students. By W. G. Porter, M.B., F.R.C.S. Edin. 3rd ed. Fully revised under the editorship of A. Logan Turner, M.D. Edin., F.R.C.S. Edin. Pp. 300. 12s. 6d.
Oto-Rhino-Laryngology for the Student and Practitioner. By Dr. G. Laurens. Translated from 2nd French ed. by H. C. Fox, F.R.C.S. With foreword by Dr. J. Dundas Grant. Pp. 339. 17s. 6d.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.
THURSDAY, Jan. 29th.—Papers:—Prof. W. Bateson: The Genetics of "Rogues" among Culinary Peas. (Pisum Sativum.)—Mr. L. T. Hogben: Studies on Synapsis. I., Oogenesis in the Hymenoptera (communicated by Prof. E. W. MacBride).—Mr. H. Onslow: On a Periodic Structure in Many Insect Scales, and the Cause of their Iridescent Colours (communicated by Prof. F. G. Hopkins).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
Friday, Jan. 30th.

SOCIAL EVENING: The next Social Evening will be on Friday, Jan. 30th, at 8.30 P.M. Sir D'Arcy Power has kindly agreed to give a twenty minutes' talk (illustrated) on "The Fees of Our Predecessors."
The Library will be open, and Dr. Andrew Balfour, Dr. F. W. Cock, Dr. W. J. R. and Mrs. Simpson, and Dr. Jane Walker will exhibit objects of interest. Music and light refreshments. It is hoped there will be a good attendance of Fellows and their friends (including ladies), who will be cordially welcomed.
The President, Sir Humphry Rolleston, and Lady Rolleston will receive the guests at 8.30 P.M.

MEETINGS OF SECTIONS.
Monday, Jan. 26th.

ODONTOLOGY (Hon. Secretaries—G. Paton Pollitt, W. Kelsey Fry, J. Howard Mummery): at 8 P.M.
Paper:
Mr. S. F. St. J. Steadman: Dental Sepsis in Children, its Consequences and Treatment.

Tuesday, Jan. 27th.

MEDICINE (Hon. Secretaries—W. Cecil Bosanquet, J. H. Thursfield): at 5.30 P.M.
Paper:
Dr. W. H. Willcox: Typhus and Relapsing Fever in Mesopotamia and Northern Persia.
Dr. Arkwright and Dr. Ledingham will speak on the bacteriology.

Thursday, Jan. 29th.

BALNEOLOGY AND CLIMATOLOGY (Hon. Secretaries—J. Campbell McClure, C. F. Sonntag, F. G. Thomson): at 5.30 P.M.
Discussion:
On "The Merits and Defects of the British Health Resorts," to be opened by Dr. Neville Wood.

THERAPEUTICS AND PHARMACOLOGY.—Members of this Section are cordially invited to attend and to take part in the above Discussion.
Those desiring to speak are requested to send their names to Dr. C. F. Sonntag, 80a, Belsize Park-gardens, N.W.3.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.
MONDAY, Jan. 26th.—8.30 P.M., Demonstration of Pathological and Medico-Legal Specimens by Dr. J. L. Dimond, Dr. J. Freeman, Dr. B. Spilsbury, Dr. C. E. Lakin, Dr. A. Fleming, Dr. Elsworthy, and Dr. Greenfield.

HUNTERIAN SOCIETY, at the School of Oriental Languages, Finsbury-circus, E.C.
WEDNESDAY, Jan. 28th.—9 P.M., Paper:—Dr. A. E. Gow: Treatment by Protein Shock.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.
Six Hunterian Lectures on John Hunter's Observations and Discoveries in Anatomy and Surgery (illustrated by his specimens and preparations).
MONDAY, Jan. 26th.—5 P.M., Prof. A. Keith: IV., His Contributions to Our Knowledge of the Kidneys, Bladder and Urethra, and Diseases connected with these Structures.
WEDNESDAY.—5 P.M., Prof. A. Keith: V., His Contributions to Our Knowledge of the Genital and Reproductive Systems.
FRIDAY.—5 P.M., Prof. A. Keith: VI., His Contributions to Our Knowledge of the Eye, Ear, and Nose.

UNIVERSITY OF LONDON.
Advanced Lectures in Physiology to Students of the University and others interested in the subject.
A Course of Eight Lectures on Physiologically Balanced Solutions will be given by Dr. W. L. Symes in the Physiological Laboratory of the University, South Kensington, S.W.
TUESDAY Jan. 27th.—5 P.M., Lecture I.
A Course of Eight Lectures on the Reaction of the Blood and Acidosis will be given by Dr. J. W. Trevan, at St. Bartholomew's Hospital, West Smithfield, E.C.
WEDNESDAY, Jan. 28th.—4.30 P.M., Lecture I.
A Course of Eight Lectures on the Regulation of Respiration will be given by Dr. M. S. Pembrey and Mr. J. H. Ryffel at Guy's Hospital, Borough, S.E.
THURSDAY, Jan. 29th.—4.30 P.M., Lecture IV.

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON), Mile End, E.
A Course of Instruction on the Diseases of Children, open to Post-Graduates and to Students of the Hospital. (The lectures will be illustrated by lantern slides.)
MONDAY, Jan. 26th.—9.15 A.M., Lecture III.:—Dr. Thompson: Organic and Functional Nervous Diseases, Meningitis and Mental Deficiency. (At the Anatomical Theatre.)
WEDNESDAY.—10 A.M., Clinical Demonstration:—Dr. Miller. (At the Children's Out-patient Department.)
SATURDAY.—10.15 A.M., Lecture IV., Dr. Hutchison: General Diseases. (At the Anatomical Theatre.)

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL (UNIVERSITY OF LONDON).

A Post-Graduate Course of Lectures on Syphilis will be given by various members of the staff of King's College Hospital during the ensuing year:—

FRIDAY, Jan 30th.—9.15 P.M., Lecture I.:—Dr. W. d'Este Emery: Pathology and Pathological Diagnosis; Methods of Collecting Material for Spirochætes and for Wassermann Reaction; Interpretation of Results.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART POST-GRADUATE COURSE, Westmoreland-street, W.

MONDAY, Jan. 26th.—11 A.M., Out-patients: Dr. Goodall. 2 P.M., In-patients: Dr. Moon.

TUESDAY.—2 P.M., Out-patients: Dr. R. Wells. 3 P.M., In-patients: Dr. Gibbes.

WEDNESDAY.—2 P.M., Out-patients: Dr. Moon. 5.30 P.M., Lecture:—Dr. Price: The Pulse in Diagnosis (I).

THURSDAY.—10 A.M., In-patients: Dr. Hamill: 2 P.M., Out-patients: Dr. Price.

FRIDAY.—2 P.M., Out-patients: Dr. Gibbes. 2.30 P.M., In-patients: Dr. Wells.

SATURDAY.—10.30 A.M., In-patients: Dr. Hamill.

ROYAL INSTITUTE OF PUBLIC HEALTH, in the Lecture Hall of the Institute, 37, Russell-square, W.C.

Special Course of Lectures and Demonstrations on Tuberculosis for Medical Men and Women qualifying to become Tuberculosis Officers, General Practitioners, and others. Bacteriological Demonstrations will be given in the Laboratories of the Institute, and visits arranged to Sanatoriums, Tuberculosis Dispensaries, &c.

THURSDAY, Jan. 29th.—5 P.M., Lecture III.:—Dr. O. May: Tuberculosis in Relation to Life Assurance.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

TUESDAY, Jan. 27th.—2 P.M., Demonstration:—Dr. J. Metcalfe: The X Ray Treatment of Diseases of the Thyroid Gland. 4.30 P.M., Lantern Lecture:—Lieut.-Col. R. H. Elliot: The Treatment of Glaucoma.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C. 1.

MEDICAL SCHOOL.

MONDAY, Jan. 26th.—2-3.30 P.M., Out-patient Clinic: Dr. Collier. 3.30 P.M., Dr. S. A. Kinnier Wilson: Examination of Nervous System and Interpretation of Physical Signs. III.

TUESDAY, Jan. 27th.—2-3.30 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Ward Cases: Dr. Risien Russell.

WEDNESDAY, Jan. 28th.—2 P.M., Mr. Scott: Auditory Vertigo and Forced Movements. 3.30 P.M., Dr. Greenfield: Pathological Demonstration.

THURSDAY, Jan. 29th.—2-3.30 P.M., Out-patient Clinic: Dr. Farquhar Buzzard. 3.30 P.M., Dr. S. A. Kinnier Wilson: Examination of Nervous System and Interpretation of Physical Signs. IV.

FRIDAY, Jan. 30th.—2-3.30 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Ward Cases: Dr. Tooth.

SATURDAY, Jan. 31st.—9 A.M., Surgical Operations.

Fee for Post-Graduate Course £7 7s. C. M. HINDS HOWELL, Dean.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

FRIDAY, Jan. 23rd.—5 P.M., Special Lecture:—Prof. W. M. Bayliss: Acidosis.

SATURDAY.—10 A.M., Dr. A. Saunders: Medical Diseases of Children.

MONDAY.—5 P.M., Mr. Addison: Club Foot.

TUESDAY.—5 P.M., Mr. Banks Davis: Common Affections of the Middle Ear—Treatment.

WEDNESDAY.—5 P.M., Mr. Souttar: Clinical Surgery.

THURSDAY.—5 P.M., Dr. G. Stewart: Encephalitis Lethargica.

FRIDAY.—5 P.M., Special Lecture:—Mr. MacMahon: The Treatment of Functional and Organic Affections of Voice and Speech.

ROYAL COLONIAL INSTITUTE, at the Central Hall, Westminster, S.W.

TUESDAY, Jan. 27th.—3.30 P.M., Paper:—Dr. L. W. Sambon: Tropical and Sub-Tropical Diseases.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.

TUESDAY, Jan. 27th.—3 P.M., Lecture:—Prof. G. E. Smith: The Evolution of Man and the Early History of Civilisation. I., Man's Origin.

UNIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE POST-GRADUATE DEMONSTRATIONS, at the Sheffield Royal Hospital.

MONDAY, Jan. 26th.—3.30 P.M., Dr. Nutt: Localisation of Foreign Bodies.

TUESDAY.—4 P.M., Dr. Hay: Methods of Examination of Eye (continued).

WEDNESDAY.—3.30 P.M., Dr. Wilkinson: Enlarged Tonsils and Adenoids.

THURSDAY.—3.30 P.M., Dr. Skinner: Urticaria: Purpura, &c.

FRIDAY.—4 P.M., Dr. Hay: Ocular Sequelæ of General Diseases.

UNIVERSITY OF BIRMINGHAM—FACULTY OF MEDICINE, in the Anatomical Theatre, Edmund-street, Birmingham.

Post-Graduate Course of Lectures on Venereal Disease:—

WEDNESDAY, Jan. 28th.—4.15 P.M., Mr. B. Ward: Gonorrhœa in the Male. (Lecture II.)

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

TUESDAY, Jan. 27th.—4.30 P.M., Lecture:—Mr. W. H. Hey: Surgical Treatment of Incurable Cancer.

SALFORD ROYAL HOSPITAL AND ANCOATS HOSPITAL POST-GRADUATE DEMONSTRATIONS, at the two Hospitals alternately.

THURSDAY, Jan. 29th.—4.30 P.M., Mr. Douglas: Clinical Demonstration. (At Ancoats Hospital.)

Notes, Short Comments, and Answers to Correspondents.

PUBLIC HEALTH IN BOMBAY, 1918.

THE population of Bombay at the Census taken in 1911 was found to be 979,445, and on this figure the ratios of sickness and mortality are still calculated, but Dr. J. A. Turner, the then health officer, reports that since that year "the city's population has vastly increased; besides the natural increase, we have to take into account the increase due to adventitious causes, which may be roughly put down at 200,000 to 300,000." The ratios of disease incidence and mortality require, therefore, to be materially modified. "The outstanding feature of the year was a series of epidemics, which followed one another in quick succession, lasting altogether for over 39 weeks, and were responsible for an appalling increase in mortality."

Birth and Death Ratios.

The birth-rate is reckoned as 22·18 per 1000 and the general death-rate at 59·61, the respective decennial averages (1908–17) having been 18·72 and 34·02. Dr. Turner, however, reckons the true birth-rate to have been 30·12 and the true death-rate 56·28. The infant mortality is estimated at 434·82 per 1000 births (including those unregistered), compared with 304·25 in 1917 and 278·48 in 1916; the total number of infantile deaths was 12,829, of which 4648 were due to respiratory diseases, 3069 to debility, and 2033 to affections of the nervous system. Of 14,442 infants born in one-roomed tenements 76·72 per cent. died, of 2117 born in two-roomed tenements 49·88 per cent. died, while of 4051 infants born in hospitals only 7·92 per cent. died, thus clearly proving that "the appalling mortality" is to a very great extent preventable. Much good work is being done by municipal nurses and health visitors under the scheme inaugurated by Lady Willingdon in 1914; which, moreover, now supplies pure pasteurised milk, not only for the children born in the three maternity homes that have been established, but also for those born under the supervision of the health visitors or municipal midwives; milk to the value of about 700 rupees (say, £70) being distributed every month. It is now proposed to open infant welfare centres in various parts of the city to give advice to mothers and medical aid to infants and to establish day nurseries.

The total number of deaths registered was 58,388 (compared with 33,390 in 1917); this gives a ratio of 59·61 per 1000, considerably higher than the decennial average of 34·02, and higher than in any year since 1905, when it was 61·54. But, as Dr. Turner points out, 3274 of these deaths (including 1230 deaths in war hospitals) occurred among new arrivals not belonging to Bombay; by deducting these, and adding the deaths of Bombay inhabitants that occurred in their houses up country, a corrected total of 55,128 deaths gives a ratio of 56·28 per 1000 on the 1911 population. "Such an estimate is desirable, as it marks a greater approximation to the truth than the bare statement of the number of deaths in the population." It is often said that statistics may be made to prove anything, but qualifications of this kind are absolutely necessary to obtain as near an approach to accuracy as is practicable. Of the total mortality of 58,388, about 40 per cent. was due to respiratory diseases (23,487 deaths, of which 10,107 occurred in September and October). The ratio was 23·97 per 1000, compared with 9·42 in the preceding quinquennium; presumably it was connected with the influenza epidemic. During September the total deaths in the city rapidly increased from 102 on the 10th to 712 on the 30th. On Oct. 6th there were 768 deaths, of which 161 were recorded as influenza, and 461 as due to respiratory diseases. During the worst plague epidemic the highest total mortality on a single day had been 433 on Feb. 16th, 1900. Great efforts were made to meet the emergency by the Medical Relief Committee of the Corporation and the Municipal Commissioner. Posters and leaflets were circulated urging the people to go to hospital on the appearance of sickness, and offering free treatment, milk, and "pneumonia jackets." Temporary or "table" dispensaries were put up in the poorer parts of the city to the number of about a hundred; temporary hospitals were opened by different communities, Parsees, Jains, and others in various parts of the city. Special wards were placed at the disposal of the health authority in various hospitals; the military authorities lent the use of 400 beds, and also lent hospital orderlies and ambulances and cots; the Western India Turf Club lent their offices as an intelligence bureau; the Red Cross Society supplied sleeping-suits. By such energetic and efficient action the progress of the disease was arrested after 62 days. The actual number of deaths above normal for this period was 20,258, averaging 326 per day—that is, in a *yearly* ratio of 108·17 per 1000 of the estimated population (or of 121·48 per 1000 of the population according to last census).

Tuberculosis and Other Fevers.

Tuberculosis caused 2513 deaths (2·56 per 1000), a higher ncidence than in 1917 (2·16), and the quinquennial mean (1·90). Mussalmans suffered most (3·99), and next to them Eurasians (3·82); Parsees suffered least (0·96), and next to them Jews (1·36) and Europeans (1·42). The King George V. Anti-Tuberculosis League carries on both prevention and treatment in coöperation with the Health Department. Enteric fever, "malaria," and "ague and remittent" are classed, together with scarlet and relapsing fevers, under the head of "All fevers." From the combined diseases there were 4553 deaths, compared with 2449 in 1917; the enteric deaths were 125, those from "malaria" were 200, while from "ague and remittent fever" there were 4219, compared with 2012 in 1917, and 2132, the quinquennial average. A severe outbreak of cholera (the worst that has been experienced within the last 30 years) commenced in December, 1918, and lasted until the end of February, 1919; there were 396 cases in December and 973 in January and February, amounting to 1369 during nine weeks. The case-mortality was 56·9 per cent. in 1918 and 52·8 in 1919. More than half the deaths occurred within 24 hours of admission to hospital, the patients being already semi-moribund. Dr. N. H. Choksy, assistant health officer in charge of the Arthur Road Hospital for infectious diseases, states that the relative fatality of the disease varies considerably with the social condition of the patient; among Parsees it has been found to be 28 per cent.; Europeans, 31·0; Mahommedans, 47·5; and Hindus, 53·4 (statistics of 1910 to 1919, including two epidemics).

Plague.

The same officer reports on the work of the Maratha Plague Hospital, which was also used for the treatment of infectious diseases, supplementary to the Arthur Road Hospital; 328 cases of plague were admitted, of which 263 were fatal (80·1 per cent.). The treatment of this disease by subcutaneous injections of colloidal preparations has now been carried out during two full epidemic periods, 107 cases having been so treated during the year under report out of the total 328 admissions; all moribund and semi-moribund cases, convalescent and semi-convalescent patients, and all whose illness had lasted six or more days were excluded, and the treatment restricted "to the most acute cases from the first to the fifth day of illness who clinically exhibited some chances of recovery." Of the 107 patients thus treated, 75 died and 32 recovered, giving a case-mortality of 70 per cent. By grouping these cases with those similarly dealt with in 1916 and 1917 it was found that of a total of 295 the case-mortality was 64·4 per cent.; in 222 cases treated in a similer manner by the Plague Commission in 1909-12 the case-mortality had been 66·2 per cent. The best results were obtained with collosol iodine (106 cases with 59·4 per cent. case-mortality), collosol argentum (93 cases, 64·5 per cent.), and iodeol (63 cases, 65 per cent.).

Conclusions.

In the concluding paragraphs of this very able report Dr. Turner mentions that, as far back as 1914, he pointed out that the expenditure on public health administration was, in proportion to the population, less than it had been in 1901; that proposals for improvement had been made, approved, and sanctioned, but not carried out; that the Health Department had been starved financially, and that no improvement could be made in the city unless a larger view is taken of the situation. The population has increased from 776,000 in 1901 to over 1,200,000 in 1919; the rateable value has risen from 286 to 754 lakhs of rupees, while the expenditure on public health works has decreased from 23 per cent. to 17 per cent. of the total. We regret to learn that this is Dr. Turner's last report as executive health officer. Though Kipling says that "East is East and West is West, and never the twain shall meet," as a matter of fact they do meet in Bombay, where the great majority of people who visit India make their first acquaintance with the "gorgeous East." The sanitary welfare of Bombay is a matter of importance to the whole Indian Empire. If the civil authorities neglect to act on the recommendations of their skilled and experienced adviser on matters affecting the public health they assume a very grave responsibility, for which, sooner or later, they will undoubtedly have to give an account.

NORWICH NON-MEDICAL CORONERS AND NECROPSIES.

THE attitude of a non-medical coroner to the performance of necropsies on persons who have died suddenly has recently aroused some interest in Norwich. A woman, aged 75, had been for some time last summer under the treatment of a doctor. On the morning of Jan. 6th she complained to her son of having had a bad night, and said she was suffering from pain in the chest and "wind round the heart." Shortly afterwards she went out to a shop to buy meat, and while there she collapsed and fell. The police ambulance was sent for, and the policeman in charge, believing the woman to be dead, took her to the Norfolk and Norwich Hospital, where the house surgeon pronounced life extinct. At the subsequent inquest the house surgeon stated that he had performed a post-mortem examination, and that the cause of death was valvular disease of the heart. The city coroner, Mr. W. N. Ladell, commented on what he considered the irregularity of the proceedings. He said that if a person was found dead the police had no business to remove the body to the hospital; that this woman should have been removed to her home and a doctor—the police surgeon if possible—called in to pronounce whether life was extinct; and then that his (the coroner's) instructions should have been awaited. The coroner considered that no post-mortem was necessary in this case, as the woman had been attended by a doctor, who could have been called. He stated that in future no post-mortem was to be made in similar circumstances without instructions from the coroner. As no such instructions had been given, he refused to allow the house surgeon a fee for the post-mortem, though he paid him his fee for giving evidence.

BOILING WATER FOR INDIGESTION.

AN inquest was recently held at Hayle, Cornwall, relative to the death of a man, aged 44 years. Evidence showed that the deceased "sipped a cup of boiling water to cure indigestion." Medical evidence stated that "death was due to suffocation, owing to œdematous laryngitis caused by drinking boiling water," and the jury returned a verdict that death was due to misadventure.

MONTHLY VITAL STATISTICS OF LONDON.

To the Editor of THE LANCET.

SIR,—In the table of Analysis of Sickness and Mortality Statistics in London during November, 1919, which you published in THE LANCET of Dec. 13th, 1919, I observe that the figures are apparently based on the "Estimated civil population of London in 1917." This basis was commenced to be used first in THE LANCET of March, 1918, and some of those who follow the tables may be wondering why, with the end of the war and demobilisation, this old basis is still being used.

I am, Sir, yours faithfully,

Jan. 17th, 1920. ENQUIRER.

*** For some time past now the official weekly returns issued from Somerset House have explained this apparent anomaly by printing the following footnote, which will answer our correspondent's question:—

The estimates of population refer to the year 1917, and are based on the returns furnished under the National Registration Act, 1915, and under the scheme for rationing of sugar. It is necessary for the present to continue the use of the estimates of population as in 1917, because those for 1918, although they might now be used, would necessarily differ more from the facts of the present time than the earlier estimates. The main change which occurred between mid-1917 and mid-1918 was further depletion of the male civilian population by enlistment, and as this has now been more than made good by demobilisation, it follows that the 1917 estimates, though they understate the present population, do so to a less extent than would those for 1918.—ED. L.

Communications, Letters, &c., to the Editor have been received from—

A.—*Answers*, Lond., Editor of; Dr. H. W. Armit, Sydney.
B.—Board of Agriculture and Fisheries, Lond.; Surg.-Comdr. K. D. Bell, R.N., Portsmouth; Dr. G. Blacker, Lond.; Mr. H. Barwell, Lond.; Mr. H. Becker, Lond.; Dr. A. Blackhall-Morison, Lond.; Mr. G. Bethell, Lond.; Mr. F. E. Beddard, Lond.; Dr. M. W. Browdy, Manchester; Sir A. Bowlby, Bt., Lond.; Dr. H. K. Brade-Birks, Salford; Dr. E. G. Bunbury, Crawley; Dr. H. Brown, Chislehurst; Dr. H. Brown, Lond.
C.—Miss A. Cooper, Derby; Dr. D. W. Carmalt-Jones, Lond.; Dr. F. G. Chandler, Lond.; Mr. H. W. Crosse, Lond; Dr. E. P. Cumberbatch, Lond.; Dr. P. J. Cammidge, Lond.; Mr. J. F. Colyer, Lond.; Dr. E. L. Collis, Cardiff; Dr. P. C. Coombes, Coulsdon.
D.—Dr. B. V. Dunn, Loughborough; Mr. P. K. Dutt, Leeds; Sir H. B. Donkin, Lond.; Miss G. H. G. Dundas, Middlesbrough; Department of Scientific and Industrial Research, Lond.; Dr. J. S. C. Douglas, Sheffield; Mr. J. Denby, Sanford, Maine; Dr. A. G. B. Duncan, Stonehaven.
E.—Capt. J. I. Enright, R.A.M.C., Liverpool; Major-Gen. Sir G. Evatt, Lond.
F.—Dr. J. G. Forbes, Redhill; Fellowship of Medicine, Lond., Sec. of; Dr. F. Fergus, Glasgow; Mr. H. R. Foote, Lond.
G.—General Electric Co., Lond.; Dr. W. E. Gye, Lond.
H.—Dr. L. Hill, Lond.; *Hospital Gazette*, Lond.; Mr. E. W. Hardy, Manchester; Mr. W. W. Hardwicke, Lond.; Harveian Society of London, President and Council of; Dr. F. Hernaman-Johnson, Lond.
I.—Insurance Committee for the County of London.
L.—London County Council, Education Officer of; London Hospital Medical College, Sec. of; Sir Arbuthnot Lane, Bt., Lond.; Dr. T. L. Llewellyn, Newcastle.
M.—Mr. H. W. L. Molesworth, Lond.; Dr. J. B. Mennell, Lond.; Dr. R. D. Moyle, Davosdorf; Ministry of Health, Lond.; Sir John MacAlister, Lond.; Medical Supply Association, Lond.; Ministry of Pensions, Lond.
N.—National Institute for the Blind, Lond., Librarian of; Dr. J. B. Neal, New York.
O.—Mrs. N. O'Brien, Mitcham.
P.—Mr. H. A. Powell, Lond.
R.—Mr. J. D. Rolleston, Lond.; Royal Infirmary, Manchester, Sec. of; Royal Sanitary Institute, Lond.
S.—Dr. A. Savill, Lond.; Dr. C. Slater, Lond.; Dr. R. H. Steen, Dartford; Dr. W. H. B. Stoddart, Lond.; Prof. W. Stirling, Manchester; Scottish Board of Health, Intelligence Branch; Dr. H. Spencer, Lond.
T.—Sir J. Tweedy, Lond.; Dr. A. H. Thompson, Lond.; Dr. H. A. Treadgold, Lond.; Dr. F. S. Tinker, Banstead; Tasmania, Department of Public Health of.
V.—Vermin Repression Society, Lond.
W.—Dr. J. P. Williams, Namtu; Mr. P. J. Whitty, Wicklow.
Y.—Dr. H. Yofé, Haifa.

Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET, 423 Strand, W.C. 2.